OCTOBER 2024

INTERSECTION STUDY FOR CR 670 (BURNT MILL ROAD) AND CR 673 (WHITE HORSE ROAD)

VOORHEES TOWNSHIP, CAMDEN COUNTY

LOCAL CONCEPT DEVELOPMENT REPORT

Submitted to:

Delaware Valley Regional Planning Commission

Camden County

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I. INTRODUCTION

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Foreword

This report documents the findings of the Local Concept Development for improvement designs of the intersection of CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) in Voorhees Township, Camden County. See Appendices E and F for the location map and Straight Line Diagrams for both county routes.

Both county routes are classified as Minor Arterials. The posted speed limit of CR 670 at the intersection is 30 MPH and the posted speed of CR 673 is 25 MPH. Both routes run south-north and CR 670 meets the intersection at MP 0.32 and CR 673 meets the intersection at MP 5.27.

The existing conditions of the intersection and the project purpose and need are described within this report.

Data Reviewed

Available data was obtained from various sources during the data collection phase of the project. Four field visits were conducted to confirm the existing intersection and overall site conditions. The information was recorded with field notes and also photographed. The aerial plan and photographs are included in Appendix E.

Level 1 mapping was prepared using photogrammetric base mapping and ground survey. Existing site features and topography were derived from aerial imagery. Please note ground survey was conducted before the completion of the construction of the WAWA gas station. Additional mapping may be required to complete the design phase.

The information was used to study the project constraints, define substandard design elements, and evaluate the project alternatives.

Design Standards

The following design standards were used in the development of the project alternatives.

AASHTO

1. *A Policy on Geometric Design of Highways and Streets, 2018;*
2. *Roadside Design Guide, 2011;*

New Jersey Department of Transportation

1. *Roadway Design Manual, 2015;*
2. *State Highway Access Management Code (Access Code), Supp. 7-16-2018;*
3. *Cost Estimating Guidelines, 2021;*
4. *Soil Erosion and Sediment Control Standards, 2008*
5. *Standard Construction Details, Roadway, Traffic Control, Bridge, 2016;*
6. *Traffic Mitigation Guidelines, 2014;*
7. *Bicycle Compatible Roadways and Bikeways – Planning and Design Guidelines, 1996;*
8. *Pedestrian Compatible – Planning and Design Guidelines, 1996;*
9. *Guidance for ADA Project Design, 2014;*
10. *Access Design Guidelines, 2012;*
11. *Construction Scheduling Manual, 2013;*
12. *Right of Way Engineering Manual, 2022;*

Transportation Research Board

1. *Highway Capacity Manual (HCM), 2016;*

Federal Highway Administration

1. *Manual on Uniform Traffic Control Devices (MUTCD), 2023;*

Characteristics of the Roadways and Surrounding Area

Roadways: CR 670 (Burnt Mill Road) has a speed limit of 30 MPH at the intersection and has a curb-to-curb width of 47 feet. CR 673 (White Horse Road) has a speed limit of 25 MPH at the intersection and has a curb-to-curb width of 48 feet. The Average Annual Daily Traffic (AADT) of the intersection is 22,614 (2022). Additional traffic volume descriptions can be found in Appendix G.

Land Use: The project location is in a well-developed area comprised of commercial and residential properties. There are private businesses within the immediate project site as well as single-family homes along both corridors. In addition, there is a partial Green Acres property near the intersection. See section V for more information about the Green Acre property.

Public Involvement Action Plan

The standard NJDOT Project Delivery Process for Concept Development was utilized for this project. This included tasks for development of the Preliminary Preferred Alternative (PPA), two local officials briefings, and two public information centers. As a part of the scope of work for this project, a PIAP was developed for design and construction, a copy of which can be found in Appendix W. The PIAP is designed to promote an on-going partnership with the public and ensure that the impacted communities are considered, informed, and involved in the project. The public outreach process provides an outlet for public involvement to understand and support the selection of the preferred alternative. The following summarizes the PIAP goals.

1. Public Involvement Goals

- Educate the public about the purpose and need of the project.
- Promote an on-going public partnership, ensuring that the transportation benefits are considered within the context of the communities directly impacted by the project.
- Provide an effective mechanism for the public to offer input.
- Ensure early, frequent, and continuous consultation with the public by committing to public notification of the affected parties, citizen input in the identification of the solutions and dedication to make the public's input meaningful.
- Assist in building public support for both agreement on the project need and the identification of possible solutions along with the selection of the PPA.
- Identify early in the process any potential "fatal flaws" that would prevent the advancement of the project or its ability to adequately address the identified need.

2. Public Outreach Completed During Local Concept Development

- Developed visualization techniques, such as slideshows and site photographs.

- JMT held an Initial Local Officials Briefing with local officials and key stakeholders on August 23, 2022, to introduce the project, the purpose and need, to solicit comments/concerns, and to identify applicable requirements and/or guidelines.
- Coordinated efforts with outside agencies regarding traffic lanes shifts, staging impacts, or if detours are proposed for the alternatives.
- Before selection of the PPA, JMT held a Stakeholders Meeting on October 21, 2022, to gain acceptance and to request a Resolution of Support from each entity.
- JMT and Stokes Creative Group held Public Information Centers (PIC) on December 14th, 2022, and December 12, 2023. All key stakeholders and residents within a prescribed distance of the project limits were invited. The presentation and meeting minutes of the second PIC can be found in Appendix J.
- JMT Re-evaluated the PIAP upon completion of concept development to ensure that the identified strategies still adequately address the public involvement effort moving forward.

II. PURPOSE AND NEED

The purpose of the project is to improve safety and provide congestion relief for all roadway users at the intersection of CR 670 (Burnt Mill Road) and CR 673 (White Horse Road). At the same time, improve traffic operations while limiting impacts to right-of-way and operations of local businesses. While the intersection Level of Service (LOS) is sufficient, there are concerns about safety because of the high number of injuries and crashes at the intersection. A copy of the intersection's collision diagram can be found in Appendix H.

The PPA needs to address the substandard lane geometry and left-turn lane configurations. The intersection has no offset left turn lanes and left turns operate with permissive left control. Additionally, pedestrian and bicycle facilities are inadequate or nonexistent. Pedestrian cross walks and ramps need to be upgraded to meet current standards with the American Disabilities Act (ADA). A copy of the Purpose & Need of this project can be found in Appendix A.

Maintenance Needs

Although the intersection operates well, the high number of crashes and injuries at the intersection is a major concern. This project needs to address the crash and injury rate by improving the geometry of the intersection and improving the safety of turning in and out of driveways along White Horse Road.

Roadway Needs

The overall accessibility for vehicles and pedestrians needs to be improved. To decrease the crash rates at the intersection, left turn movements need priority at the intersection to reduce queues from the left turn between White Horse Road northbound to Burnt Mill Road northbound.

Goals and Objectives

The goal of this project is to reduce the crash frequency at the intersection, especially those of right angles, rear ends, and crashes originating from driveways. The intersection has the 2nd-highest crash rate in Camden County, and the 5th-highest in the Delaware Valley Regional Planning Commission (DVRPC). Substandard design elements must be corrected to address operational deficiencies that are at the intersection, and to provide a system to improve safety for all road users. While improving the safety and serviceability of the intersection, it is important to minimize ROW, environmental, social, and economic impacts.

III. EXISTING INVENTORY AND CONDITION

Existing Roadway Inventory and Conditions

Field visits were conducted on the following days to assess the existing conditions of the project site, and to ascertain features that could potentially have an impact on the delivery of the project.

- February 14, 2022
- April 27, 2022
- November 16, 2022
- January 9, 2023

Design elements are inherently based on traffic volumes and design speed.

1. Major Roadway Cross Section Elements

Unless noted otherwise, the following cross-sectional data was measured from surveyed topography or field observations.

Design Speed: Design elements are inherently based on traffic volumes and design speed. The posted speed limits of CR 670 and CR 673 are 30 and 25 MPH respectively. According to Table 2-1 of the Roadway Design Manual (NJDOT-RDM), the design speed of each route is 35 and 30 MPH respectively.

Cross Slope: Based on Section 5.2.2. in the NJDOT-RDM, the minimum cross-slope should be 1.5%. The existing cross slopes of all approaches of the intersection meet this minimum.

Lane Width: Based on Section 5.3 of the NJDOT-RDM, the minimum lane width should be 11 feet. Existing conditions meet this standard.

Shoulder Width: According to section 5.4.2 of the NJDOT-RDM, the minimum shoulder width should be 8'-0". The shoulder widths within the project limit vary between 0'-0" and 8'-0", where less than 8'-0" shoulder widths are substandard. Due to the right-of-way and physical dwellings, it is not anticipated to bring the shoulder width up to standard.

2. Clear Zone

The clear zone is defined as the area starting at the edge of the traveled way available for safe use by errant vehicles. The width of the clear zone varies with speed, traffic volumes, roadside slope, and horizontal roadway alignment. According to Figure 8-A of the NJDOT-RDM, the clear zone for CR 673 (White Horse Road) is 14'-0" to 16'-0" and the clear zone for CR 670 (Burnt Mill Road) is 12'-0" to 14'-0". Traffic signal facilities, utility poles, trees, and signs exist within the clear zone of both routes at the intersection.

3. Guide Rail

There is no guide rail within the project limits. The use of guide rail in front of the Atlantic Coin and Jewelry Exchange will be revisited during the Preliminary Engineering (PE) phase.

4. Drainage

The capacity of the existing drainage system for the project limits was not analyzed during concept development. A thorough drainage analysis will be performed during PE to ascertain the necessary modifications to the existing drainage system for the implementation of the PPA.

5. Signing and Striping

All existing regulatory and warning signs within the project limits appear to be in conformance with the most current version of the Manual on Uniform Traffic Control Devices. Striping between travel lanes, lane markings, and crosswalks need to be repainted.

6. Signalized Intersection

The existing signal head sizes and positioning comply with the current MUTCD and NJDOT-RDM (Section 12) Standards. The existing signalized intersection

operates with marked crosswalks and countdown pedestrian signal heads and push buttons. Sidewalks are present, but ADA standard curb ramps are not available at crossing locations. The design phase will include the design of new traffic signal facilities and ADA ramps.

Existing Utilities

Aerial and underground facilities exist within the project limits and were observed during the field trips. Utility Letter No. 1 was prepared and distributed to request verification of existing and/or proposed facilities within the project limits, and to obtain the name, address, and telephone number of the appropriate contact of those utility owners who have facilities within the project limits. The following utility owners have responded indicating that their facilities exist within the limits of this pavement project:

- Electric – Atlantic City Electric
- Telecommunications – Verizon
- Water – American Water
- Cable – Comcast
- Gas – South Jersey Gas

Utility Letter No. 1 and correspondence are included in Appendix K.

List of Substandard Design Elements

Information gathered from available as-built plans, combined with data from field visits, topographic survey, and SMEs was used to identify areas of deficiency according to design and safety criteria. Standard deficiencies are referenced from the NJDOT Design Exception Manual (2019).

Intersection Deficiencies

- Shoulder Width

As-Built Plans, Right-of-Way Maps and Jurisdiction

As-built plans, right of way maps and jurisdiction maps were available for this study. Copies of these as-Built plans and jurisdictional maps can be found in Appendix B.

IV. TRAFFIC AND CRASH SUMMARY

Traffic Operations

White Horse Road (CR 673) is a four-lane county route classified as a minor arterial with a posted speed limit of 25 MPH within the project limits. The roadway has 11' lanes with no shoulder in either direction.

Burnt Mill Road (CR 670) is a two-lane county route classified as a minor arterial with a posted speed limit of 30 MPH within the project limits. The roadway has 11' lanes with variable width shoulders in both directions.

Traffic Data

A Manual Turning Movement Count (MTC) was performed at the signalized intersection on January 10, 2023. This day was chosen to account for seasonal traffic volumes on a typical non-holiday weekday, and after the newly constructed Wawa gas station was open for at least 2 months. The counts included the following time periods.

- Weekday AM Peak Hour, 7:45AM – 8:45AM; and
- Weekday PM Peak Hour, 4:45PM – 5:45PM

Table 1 - CR 673 & CR 670 Peak Hour Traffic Volumes

Time-Period	AM Peak			PM Peak		
	NB	SB	Total	NB	SB	Total
CR 673 (White Horse Road)	1,144	477	1,621	772	813	1,585
CR 670 (Burnt Mill Road)	244	282	526	208	539	747

Traffic Volume Forecasts

The 2023 Traffic Volumes were projected annually until the design year of 2042 using a growth rate of 1.0%. This growth rate is taken from the NJDOT Annual Background Growth Rate Table. The following table displays the forecasted traffic volumes. Additional information about forecasted traffic volumes can be found in Appendix G.

Table 2 - Traffic Volume Forecast

Time-Period	AM Peak			PM Peak			AADT
	NB	SB	Total	NB	SB	Total	Total
CR 673 (White Horse Road)	1,382	576	1,958	933	982	1,915	23,342
CR 670 (Burnt Mill Road)	295	341	636	251	651	902	4,251

Crash Data Analysis and Crash Diagram

Camden County has identified the intersection as a high crash area. Collision data was obtained from MBO Engineering for the 72-month period between January 2014 and December 2019. According to the collision data, there have been a total of 92 collisions reported at the intersection during the six-year period. Twenty-five (27%) of the crashes were rear end collisions, thirty-three (36%) were right angle collisions and fourteen (15%) were left turn collisions. Thirty (33%) of the crashes resulted in personal injury with a total of thirty-nine injuries. Thirteen (14%) of the crashes occurred at night and twenty-one (23%) occurred on wet pavement. The additional crashes during this period were considered other types. Crash summary can be found in Appendix D.

V. SOCIAL, ECONOMIC AND ENVIRONMENTAL SCREENING

Community Outreach

A Public Involvement Action Plan (PIAP) was developed for the design and construction phases of this project. In addition, local official briefings were held on August 23, 2022, & December 4th, 2023 to solicit their input and comments. Minutes from these meetings and others can be found in Appendix M. During the concept development stage, JMT and local officials have been in contact with George Reilley, the owner of the Atlantic Coin & Jewelry Exchange, about the potential impacts to their property. See Appendix J for meeting minutes and conceptual plans.

Noise and Air Quality

Sensitive receptors are locations where people reside or where unwanted sounds or increased levels of noise or air pollution could adversely affect land use. For noise, a sensitive receptor is generally an exterior location of a property that contains a noise sensitive land use such as picnic areas, recreations areas, playgrounds, active sports areas, residences, quest lodges, schools, churches, libraries, and hospitals. For air quality, a sensitive receptor is identified as an exterior location outside of the mixing zone of uniform emissions and turbulence, which typically includes residences, bus stops, and other public places to where the public has access.

The screening determined that several sensitive receptors exist within 200 feet of the project limits, including residences and a church, however the project will not result in substantial changes to the horizontal or vertical roadway alignment or result in an increase in vehicle operating speeds or roadway capacity. The project qualifies as a Type III project per the NJDOT Traffic Noise Management Policy and is not anticipated to result in significant noise-related impacts. Standard measures for the abatement of temporary construction noise impacts should be included in the project's final plans and specifications.

The screening also determined that several sensitive receptors exist within 300 feet of the project limits, including residences and a church, however no significant air quality impacts are anticipated based on the scope of the proposed project (i.e. intersection improvements). The project will not have a significant effect on traffic noise levels in the area, as increases in traffic volumes or increases in diesel vehicles on the roadway are not anticipated. This project area is defined as unclassifiable/attainment within the 2012 annual 12 ug/m^3 PM-2.5 National Ambient Air Quality Standards. This project should be exempt from the air quality conformity standards, per Table 2 of 40 CFR 93.126, as a safety project. Standard measures for the abatement of temporary construction air quality impacts should be included in the project's final plans and specifications.

Socioeconomics

A Community Profile was developed by JMT during concept development phase, which alerts the project team of the characteristics and demographics within the project area. The Community Profile determined that the population in the study was 51% minority, 21% low-income households, and 8% linguistically isolated people. This area is above the statewide average in terms of minority population; however, the remaining two categories of the population are both below the statewide average within the project study area.

Cultural Resources

Anticipated Federal funding for the project would require consultation with the NJ Historic Preservation Office (NJHPO) under Section 106 of the National Historic Preservation Act (NHPA) of 1966 if any historical resources were found within the project area.

None of the following are located within the project area: buildings over 50 years old; bridges or culverts over 50 years old, on the national register, NR eligible or SHPO opinion, or on the NJ

State register; historic districts on the national register, NR eligible or SHPO opinion, or on the NJ State register; or historic properties on the national register, NR eligible or SHPO opinion, or on the NJ State register. The project area also does not fall within any archeological grids.

Section 4(f) Properties

Section 4(f) of the USDOT Act of 1966 stipulates that FHWA and other USDOT agencies cannot approve the "use" of land from publicly owned parks, recreation areas, wildlife and waterfowl refuges, or public and private historic sites, unless there is no feasible and prudent avoidance alternative and the project includes all possible planning to minimize harm to the protected resource.

A "use" occurs when land is permanently incorporated into a transportation facility, there is a temporary occupancy of land that is adverse, or there is a "constructive use." A "constructive use" occurs when there are no ROW takes or easements, but proximity impacts are so severe that the Section 4(f) property is substantially impaired.

Available data from NJDEP Green Acres Program Recreation Open Space Inventory (ROSI) and NJDEP GeoWeb were reviewed to identify public parkland, including recreation facilities, publicly owned open space, Wildlife Refuge or Wildlife Management Area, school athletic fields, or community park within the projects study area.

Based on this review, NJ-GeoWeb and ROSI identified an open space property within the project study area. Block 80 Lot 5 (VFW Lodge) is Green Acres Encumbered. The property is owned and managed by the Township of Vorhees. It is anticipated that this property will not be impacted based on the PPA. In addition, this property was recently rezoned so that only the back half of the property is green acres encumbered.

Highlands/Pinelands

This project study area is not located within the Highlands Area or the Pinelands Area.

Wetlands

According to the NJ-GeoWeb data, several freshwater wetland areas (forested) exist approximately 200 feet outside of the project area. Deciduous wooded wetlands are located west, northwest and northeast of the project area. The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Mapper identified a freshwater forested/shrub wetland (PFO1D) west and northwest and freshwater forested/shrub wetland (PFO1E) east of the project

area. If wetland areas are present, it is anticipated that the wetland areas will be granted a wetland transition area of 50 feet due to the lack of threatened and endangered species habitats. Therefore, the project would have no impact toward wetlands or wetland transition areas. Waterbodies and or streams were not identified on NJDEP GeoWeb mapping.

Reforestation

A majority of the trees are located within the abandoned gas station. Tree removal under Alternative II will be minimal to provide access and staging for construction only. Alternative III and IV will have more impact but should not require reforestation. Deforestation is not anticipated as part of this project, so replanting as per the No Net Loss Reforestation Act will not be required.

Floodplain

The nearest waterbody is Kirkwood Lake; however, it is not within or adjacent to the project area. Based on FEMA FIRM panel 128 of 305 Map No. 34007C0128F, revised June 16, 2009, the project area is also not within a mapped Flood Hazard Area. Alternatives III and IV will impact the unnamed tributary that flows behind the abandoned gas station. Further investigation will be required to determine if this unnamed tributary is a regulated waterbody and will possess a riparian zone and/or Flood Hazard Area. This unnamed tributary is not located on NJDEP GeoWeb mapping, nor is it included on any FEMA Firm Panels or State Delineated maps.

Sole Source Aquifer

The project is located within the Coastal Plain sole source aquifer (SSA). Due to the nature of the proposed work, this type of project does not meet the criteria set forth in the USEPA and FHWA Memorandum of Understanding on Sole Source Aquifers that would require further review.

Threatened/Endangered Species

The NJ-GeoWeb was used to determine if any records of rare, threatened and or endangered species or their habitat have been documented within the project area. According to the review, it was determined that no species were identified within the project area. The Natural Heritage Database (NHD) was also contacted for a review of threatened and endangered species, and the report identified no species of interest on the project site. The NHD is dated August 18, 2022, and can be found in Appendix I.

The US Fish and Wildlife Service Information, Planning, and Conservation System (IPaC) was reviewed to determine if any species protected by the endangered Species Act are documented within the project area. Based on the results from the IPaC Resource List the following species

may occur or could potentially be affected by proposed project activities: Northern Long-eared bat (*Myotis septentrionalis*, State Threatened), Monarch Butterfly (*Danaus Plexippus*, State Candidate), and Swamp Pink (*Helonias bullata*, State Threatened). Based on this information and habitat observed in the project area, there is likely no suitable characteristic habitat within the project study area for the species listed above. However, if tree removal is proposed as part of the project activities, a timing restriction on the clearing of trees greater than 3 inches in diameter may be imposed between April 1st and September 30th due to the potential for the Northern Long-eared bat within the project study area.

The PPA does not directly impact wetlands and/or State Open waters. If a Freshwater Wetlands permit is required as a part of proposed activities, and any wetlands are identified within the project limits, a Swamp Pink survey may be required to determine potential impacts.

Category 1 Waters

There are no Category One Waters located within the project study area.

Vernal Pools

Vernal pools are confined wetland depressions, either natural or man-made, that hold water for at least two consecutive months out of the year and is devoid of breeding fish populations. These ecosystems provide habitat to many species of amphibians, insects, reptiles, plants and other wildlife. Review of NJ GeoWeb indicated that there are no vernal pools within the vicinity of the project study area. The NHD report indicates two potential vernal habitat areas within one mile of the project area.

Stormwater

The New Jersey Department of Environmental Protection (NJDEP) Stormwater Management (SWM) Rule N.J.A.C. 7:8 was updated (July 17th, 2023). Under the SWM rules, projects that classify as a major development are required to meet the minimum design and performance standards for groundwater recharge, stormwater runoff quality, and stormwater runoff quantity at N.J.A.C. 7:8-5.4, 5.5, and 5.6 shall be met by incorporating green infrastructure in accordance with N.J.A.C. 7:8-5.3. A major development classification is triggered when a project: 1) disturbs one or more acres of land since February 2, 2004; 2) creates of one-quarter acre or more of regulated impervious surface since February 2, 2004; 3) creates one quarter acre or more of regulated motor vehicle surface since March 2, 2021; 4) or a combination of 2 and 3 above that totals an area of one-quarter acre or more.

It is anticipated that the PPA will not exceed the 0.25-acre threshold for new regulated or motor vehicle impervious surface or 1 acre of ground disturbance. Therefore, compliance with the NJDEP Stormwater Management Rules (SWM) will not be required. The concept development assumes the roadway improvements will consist of milling and resurfacing outside the areas of new impervious. If required, the disturbance impacts of full depth will have to be further investigated to determine if SWM compliance will be required. In addition, the concept development assumes the capacity of the existing roadway drainage system will not be increased through drainage system upgrades. Upgrades to the roadway drainage system could result in increased regulated impervious which would require SWM compliance.

It is expected that the PPA will result in more than 5,000 ft² of land disturbance. Soil erosion and sediment control measures will be implemented during construction in accordance with the Standards for Soil Erosion and Sediment Control (SESC) in New Jersey. Therefore, a SESC certification from the Camden County Soil Conservation District will be required.

Hazardous Waste

The NJ GeoWeb was reviewed to determine the potential for involvement with hazardous materials. According to the NJ GeoWeb, there are no gas stations, dry cleaners, or auto body shops within the project area. However, it is known that there is a previous Shell Service Station (Site ID: 23640, Preferred ID 006586, PI ID 67439), closed as of October 16, 2023; as well as an active Wawa Gas Station (Site ID: 649895, Preferred ID: 915881) adjacent to the project.

According to NJ GeoWeb, there are two known contaminated sites located within the project area. The first known contaminated site (NJEMS Site ID 649895) is located south of the intersection at 1702 South Burnt Mill Road. The site is still active, and the remediation level listed is Category 2 (C2), or potential risk. C2 is from a ranking scale where Category 1 represents the least potential risk and Category 5 represents the greatest potential risk. The second known contamination site (NJEMS Site ID 23640) is located east of the intersection at the site of an abandoned Shell Service station. This site also has an underground storage tank. This site is still active and does not have a remediation level listed.

The majority of the project area is located within the Historic Fill N zone.

Anticipated Environmental Permits or Approvals

The following environmental permits and interagency coordination are anticipated:

- Soil Erosion and Sediment Control Plan Certification from the Camden County Soil Conservation District (SCD)
- Flood Hazard Area Control Act Permit
- United States Fish & Wildlife Consultation
- NJ Department of Environmental Project (NJDEP), Division of Land Resource Protection

Environmental Summary with Probable NEPA Document Required

In summary, the Environmental Screening did not identify any "fatal flaws" that would prohibit the advancement of this project. It is anticipated that the project will meet the criteria for a Categorical Exclusion Document (CED) under 23 CFR 771. As this project will receive federal funding, NEPA documentation and coordination will be required.

VI. EVALUATION OF CONCEPTUAL ALTERNATIVES

Conceptual Alternatives

The following alternatives were developed based on data received and analyses conducted throughout the conceptual design process. Input was also received from the core Group from the DVRPC, Camden County, and SMEs from NJDOT. The Alternatives Analysis Matrix can be found in Appendix O and plan representations of each alternative can be found in Appendix Q.

***Alternative I – No-Build*:** The No-Build Alternative would assume the current safety and serviceability conditions. Roadway and pedestrian facilities as well as any substandard design elements will remain as such.

This alternative does not address the purpose of need of the project. The crash rate and other safety issues identified in this study will not be corrected.

Alternative II – Left-Turn Lanes: This alternative features left-turn lanes on both approaches of White Horse Road. A concrete median curb will be placed to restrict left- turn movements into the WAWA gas station from White Horse Road from the driveway closest to the intersection. All travel lanes on White Horse Road entering the intersection will be 11'-0", and no shoulders will be designed to maintain existing conditions. The widths of travel lanes and shoulders on Burnt Mill Road will remain as existing. Sidewalks and ADA facilities will be upgraded to meet ADA standards to allow for safe pedestrian movements at all access points of the intersection. Utility impacts associated with this alternative include the relocation of drainage inlets and the relocation of aerial utility poles and lines (electrical and CATV). The elevation and location

of manholes may be affected due to final grading of the roadway and location of the proposed curb line. This alternative requires the least amount of ROW but impacts the most properties. As of now, this alternative does not require any stormwater management. The total construction cost estimate for this alternative is $1,493,000. **Ultimately Alternative II was chosen as the Preliminary Preferred Alternative (PPA).**

Alternative III – Left-Turn Jug Handles: This alternative considers the use of left-turn jug handles on both approaches of White Horse Road. The addition of jug handles allows for unimpeded movements onto both approaches of Burnt Mill Road. The jug handles will have standard lane widths varying from 18'-0" to 21'-0" but will have substandard curve radii to limit ROW and environmental impacts. This alternative has the least impact to existing traffic but has significant ROW and environmental impacts. The total construction cost estimate for this alternative is $1,305,000. This alternative results in a net increase in impervious area greater than ¼ acre is anticipated, thereby requiring adherence to the NJDEP Stormwater Management Rules.

Alternative IV – Roundabout: This alternative consists of a roundabout replacing the existing intersection. Due to site constraints, the roundabout would be centered at the abandoned gas station and would require atypical design features. The addition of a roundabout will remove any impediment of turning movements between White Horse Road and Burnt Mill Road. The roundabout would consist of two travel lanes entering and exiting White Horse Road and one lane for Burnt Mill Road. Just as for Alternative III, this option requires substantial ROW and environmental impacts. The total construction cost estimate for this alternative is $1,733,000. This alternative results in a net increase in impervious area greater than ¼ acre is anticipated, thereby requiring adherence to the NJDEP Stormwater Management Rules.

Traffic Analysis

Traffic analysis was performed using *Synchro Trafficware, Version 11.0.* Traffic analyses were run on each of the recommended alternatives and were evaluated in concept and should be further investigated and refined during the Preliminary Engineering Phase. Traffic analysis reports can be found as a part of Appendix P.

1. 2042 Build Condition Traffic Operations

The Traffic Analysis prepared for this LCD report evaluated the levels of service in 2042 based upon the forecasted volumes described in Section IV. Traffic operations were evaluated for each alternative and recommendations for optimized operations were made during the AM and PM peak hours of operation. Traffic counts and turning movement data can be found in Appendix G.

2. 2022 Work Zone (Staged Construction) Traffic Conditions

The Traffic Analysis prepared for this CD report also evaluated the impacts resulting from the proposed construction staging and introduces conceptual traffic mitigation strategies which should be considered as part of the Preliminary Engineering Traffic Management Plan.

Right-of-Way Impacts and Review

Potential ROW impacts are anticipated. ROW acquisition will be required to improve the intersection characteristics and improve the overall safety and serviceability of the intersection. The impacts will include permanent partial fee taking of private property. The conceptual ROW impact to adjacent land parcels is summarized in Table 3.

Table 3 - Conceptual Right-of-Way Impacts

Alternative	Fee Take Area (ACRE)	# of Properties Impacted	Estimated ROW Cost
II. Left-Turn Lanes	0.30	11	$131,000
III. Left-Turn Jug Handles	1.45	4	$697,000
IV. Roundabout	0.95	5	$479,000

Access Impacts and Review

Due to commercial and residential properties in proximity to the intersection, there will be many access impacts. To maintain access to these properties, construction shall take place in stages and temporary driveways shall be constructed. Properties with access impacts are listed below:

- Block 178, Lot 2
- Block 80, Lot 3
- Block 80, Lot 10
- Block 73, Lot 6
- Block 179, Lot 1
- Block 179, Lot 2
- Block 179, Lot 3.01
- Block 179, Lot 3
- Block 179, Lot 8.02
- Block 179, Lot 4

Utility Impacts

Utilities are present within the project limits as identified in Section III and impacts are anticipated as part of all alternatives. As part of the preliminary design phase, a complete subsurface utility engineering investigation is recommended to confirm impacts to underground facilities.

Utility impacts associated with construction are summarized as follows:

- Impacts to aerial lines and utilities poles along both sides of White Horse Road are expected due to widening of the roadway. The aerial lines will be relocated before or during construction. It is anticipated the lines will be shifted east and west of their current location. Relocation of 9 utility poles will be required.
- Manholes of underground utilities will be affected. Elevations of manholes will need to be adjusted to account for final grading.
- Inlets will need to be relocated because of the realignment of the edge of pavement and curbing along all approaches of the intersection. Inlets within the project limit will need to be relocated along the final curb line of the widened roadway.

Construction Cost Estimate

The construction cost estimate for each alternative is shown below. A breakdown of these cost estimates can be found in Appendix N.

Table 4 - Cost Estimates

Alternative	Construction Estimate Total
II. Left-Turn Lanes	$1,493,000
III. Left-Turn Jug Handles	$1,305,000
IV. Roundabout	$1,733,000

Complete Streets Policy

A “Complete Street” is defined as a means to provide safe access for all users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options. The policy dictates that complete streets shall be considered during the planning, design, construction, maintenance, and operation of new and retrofit transportation facilities, enabling

safe access and mobility of pedestrians, bicyclists, and transit users of all ages and abilities. The completed Complete Street Checklist is provided as part of Appendix V.

Constructability and Staging Plans and Detour Plans

The construction of the PPA is proposed to be completed in three stages. See Appendix S for conceptual staging and detour plans.

Stage 1 Phase 1A will close the outside thru-lane of White Horse Road Northbound and the southeast corner of the intersection. Northbound traffic will merge to the inside thru-lane to maintain a single lane of traffic. During this time construction of the roadway, curb, and sidewalk will take place. During Phase 1B, the southwest corner of the intersection and outside thru-lane of White Horse Road northbound in front of the WAWA gas station will close while one lane of traffic remains open. One of the two driveways on White Horse Road to the WAWA gas station will remain open, and during Phase 1C access to the WAWA gas station will change to the other driveway. Phase 1D will conclude Stage 1 as the center of Burnt Mill Road will close while under construction. Detours for left turn movements on White Horse Road are expected to be in effect when at least one thru lane is closed.

Stage 2 Phase 2A will close the outside right turn lane of White Horse Road southbound and the outside of Burnt Mill Road northbound. Curb and sidewalk construction will occur at the northeast corner of the intersection. Phase 2B will close the outside thru-lanes of both White Horse Road southbound and Burnt Mill Road southbound. The two thru-lanes of White Horse Road northbound will be shifted to the right towards the roadway widening completed during Stage 1. The center lane on White Horse Road will be closed to account for bus turns from Burnt Mill Road. Road work during Phase 2C will take place at the center of Burnt Mill Road north of the intersection.

Stage 3 Phase 3A will close the middle 3 lanes on White Horse Road while the left turn lanes and the concrete median are under construction. Left turns between White Horse Road and Burnt Mill Road will not be permitted during stage 3A and detours along Gibbsboro Road and Lucas Lane will be utilized. Furthermore, left turns between South 2nd Street and White Horse Road southbound will not be permitted during Stage 3A and a detour through Gibbsboro Road will be utilized. Phase 3B will close the outside thru-lane and right turn lane of White Horse Road going southbound while construction occurs in the northeast corner of the intersection. Phase 3C will close the outside thru-lane of White Horse Road going southbound while construction occurs in the lane.

Controlling Substandard Design Elements and Reasonable Assurance

Substandard design elements will not be addressed in the PPA. Design exceptions will be submitted for the following standards set forth in the NJDOT Design Exceptions Manual.

- Shoulder Width

Alternatives Matrix

An alternative matrix was developed for this project. A copy of the matrix be found in Appendix O.

Risk Analysis Summary

A Risk Register was developed for this project. A copy of the Risk Register can be found in Appendix T.

Discussions with Subject Matter Experts

A meeting was held on November 1, 2023, with the Subject Matter Experts (SMEs) of the New Jersey Department of Transportation. This meeting discussed the existing conditions of the intersection and surrounding areas, the purpose and need of the project, and the alternative designs. Meeting minutes can be found as a part of Appendix M.

Preliminary Preferred Alternative (PPA)

The work as described below will result in the improvement designs of the intersection of CR 670 (Burnt Mill Road) and CR 673 (White Horse Road). The following alternative was developed based on the data and analyses along with input received from the Core Group and local official meetings. PPA plans are included in Appendix Q.

1. Scope of Work

i. Intersection Improvements

The intersection of CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) is known for a high number of injuries caused from crashes at the intersection. Alternative II features left turn lanes on both approaches of White Horse Road. This would allow for a prioritized left turn movement from White Horse Road Northbound to Burnt Mill Road Northbound. In addition, a concrete median curb will be placed to prevent left turn movements into one of the two WAWA driveways on White Horse Road. All travel lanes on White Horse Road entering the intersection will be 11’-0”, and no shoulders will be

designed to maintain existing conditions. The width of travel lanes and shoulders on Burnt Mill Road will remain as existing.

ii. Pedestrian and Bicycle Facilities

The scope of work for pedestrian facilities shall include the installation of marked crosswalks on all signalized intersection approaches. Sidewalks and ADA facilities will be designed according to ADA standards to allow for safe pedestrian movements at all access points of the intersection.

Preliminary Engineering Scope Statement

The Preliminary Engineering Scope Statement can be found as a supplement to this Conceptual Design Report. Key elements of the project scope are taken from information gathered during concept development and it is updated through final design. The Scope Statement is refined as more details become available. All input received through concept development has been incorporated into the Scope Statement.

APPENDIX A

Purpose and Need

A. Purpose and Need

A. Project Purpose

The purpose of the project is to improve safety and provide congestion relief for all roadway uses at the intersection of White Horse Road (CR 673) and Burnt Mill Road (CR 670), including improving traffic operations and addressing the high crash types while minimizing impacts to ROW and local businesses. While the intersection LOS operates well today and is projected to in the future the high number of injuries coming from crashes at the intersection is the concern. This project needs to address the higher-than-normal crash and injury rate.

B. Project Need

The intersection is located within the DVRPC Congestion Management Process (CMP) Corridor 290: CR 673 (White Horse Rd) from CR 561 (Haddonfield-Berlin Rd) to CR 534 (Blackwood-Cementron Rd). The corridor is ranked No. 6 and No. 32 in vehicle and volume delay for the DVRPC NJ portion of the region, meeting corridor mobility and reliability improvement warrants.

The intersection experiences a much higher than normal crash rate ranking No. 2 in Camden County and No. 5 in the Delaware Valley Regional Planning Commission (DVRPC) for crashes. A high percent of the crashes at the intersection involved injuries. The reduction of crashes and the severity of the crashes is the primary need for this project. The DVRPC's network screening intersection rankings show this intersection is ranked No. 5 in the region and No. 2 in Camden County based on crash weight factors. Summarizing the collision data from a 60-month period between January 2014 and December 2019 a total of 92 collisions reported at the intersection. The highest crashes were right angle collisions (36%), rear end (27%) collisions and left turn (15%), with fourteen (42%) of the crashes resulting in personal injury and zero resulted in a fatality (0%). Three of the crashes involved pedestrians and most of the crashes occurred during the day and on dry conditions. Compared to the statewide averages, the injury crash rate is 14% higher, right angle is 5% higher, rear end and left turn are 3% higher. Access Driveways for commercial driveways are located around the intersection where these locations align with the data from the collision diagrams for many of the right angle and left turn crashes.

Pedestrian and Bicycle traffic is occurring at the intersection, however many of the pedestrian and bicycle facilities are inadequate or nonexistent. While there are pedestrian signals and crosswalk markings, and there are pedestrian ramps at two of the four corners, however none of the ramps meet current standards with the Americans with Disability Act (ADA). The intersection is also on a NJ Transit bus route. Field observations noted the geometry of the intersection makes it difficult for buses to navigate the SE to SW right turn from Burnt Mill Road onto White Horse Road, heading towards the PATCO station.

The signalized intersection of White Horse Road (CR 673) and Burnt Mill Road (CR 670) is a high-volume intersection with projected 2022 AADT's on White Horse Road of 22,226 and Burnt Mill Road of 3,484. Based on 2022 volume

counts, the signal operates at an overall LOS B for both AM & PM peaks. By design year 2042, the intersection is expected to operate LOS C for both the AM and PM peak hour. The largest vehicle volumes are along White Horse Road, with AM peak being the NE approach and PM peak the SW approach. The NE approach contains heavy left turn movements for both AM and PM peaks. The signalized intersection uses 3-section permissive heads for all approaches except for the NE thru-left approach, which uses a 4-section head for protective-permissive operation. However, with the heavy opposing SW thru traffic, this operation causes NE to operate at LOS C operation with long vehicle queuing.

The intersection lane geometry and left-turn lane configurations are substandard. There is only one separate left turn lane for the intersection, which is for the NW approach and has low turn volumes along with permissive signal operation. Combined with high opposing SE approach volumes, its performance is demonstrated by its LOS C operation. The intersection has no offset left turn lanes and left turns mostly operate with permissive left control. This makes make visibility for turning vehicles difficult to see downstream oncoming vehicles when attempting to turn. This is further supported in the crash analysis below. The lack of left turn lanes for the NE approach on White Horse Road contributes to the poor LOS, along with the poor sight distance for turning vehicles making for an overall unsafe intersection operation.

C. Goals and Objectives

The primary goals and objectives of this project are listed below. The Preliminary Preferred Alternative will seek to address as many of the goals and objectives as possible.

- ***Reduce the crash frequency at the intersection, especially right angle, rear end crashes and crashes originating from driveways.***
- Adapt a safe system approach to enhance intersection safety for all road users.
- Provide or maintain pedestrian and bicycle compatibility at the intersection to the extent feasible.
- Minimize access and ROW impacts to businesses and residents at the intersection, specifically the Car Wash and Wawa properties.
- Address operational deficiencies to accommodate future travel demand at the intersection.
- Reduce heavy vehicle and bus operation impacts where feasible
- Correct the controlling substandard design elements where feasible.
- Minimize environmental, social, and economic impacts.
- Maintain Access to adjacent businesses during business hours throughout construction

APPENDIX B

As-Built Plans, Right-Of-Way Maps, and Jurisdiction Maps

REMINGTON & VERNICK ENGINEERS
ENGINEERING EXCELLENCE SINCE 1901

Reply to:
232 Kings Highway East, Haddonfield, NJ 08033
(609) 795-9595 FAX (609) 795-1882

95 Grove Street
Haddonfield, NJ 08033
(609) 795-9596
FAX (609) 795-3684

9 Allen Street
Toms River, NJ 08753
(908) 286-9220
FAX (908) 505-8416

711 N. Main Street • *Suite 5*
Pleasantville, NJ 08232
(609) 645-7110
FAX (609) 645-7076

TRAFFIC SIGNAL TIMING

Burnt Mill Road & White Horse Road
Township of Voorhees
Camden County, New Jersey

90 SECOND CYCLE

NORMAL OPERATION
SIGNAL HEADS

Phase	1-2	3-4	5-8	9-12	13-14	Time (Sec.)
A-WHITE HORSE NB-LEAD	<-G,G	R	R	DW	DW	8
A-CHANGE	<-Y,G	R	R	DW	DW	3
B-WHITE HORSE	G	G	R	W	DW	41 - 19
B-PED. CLEAR	G	G	R	FDW	DW	19
B-CHANGE	Y	Y	R	DW	DW	4
B-CLEAR	R	R	R	DW	DW	2
C-BURNT MILL	R	R	G	DW	DW	7 - 29
C-CHANGE	R	R	Y	DW	DW	4
C-CLEAR	R	R	R	DW	DW	2
EMERGENCY	**FY**	**FY**	**FR**	**OUT**	**OUT**	

PEDESTRIAN ACTUATION
SIGNAL HEADS

Phase	1-2	3-4	5-8	9-12	13-14	Time (Sec.)
A-WHITE HORSE NB-LEAD	<-G-,G	R	R	DW	DW	8
A-CHANGE	<-Y,-G	R	R	DW	DW	3
B-WHITE HORSE	G	G	R	W	DW	19
B-PED. CLEAR	G	G	R	FDW	DW	19
B-CHANGE	Y	Y	R	DW	DW	4
B-CLEAR	R	R	R	DW	DW	2
C-BURNT MILL	R	R	G	DW	W	11
C-PED. CLEAR	R	R	G	DW	FDW	18
C-CHANGE	R	R	Y	DW	DW	4
C-CLEAR	R	R	R	DW	DW	2

PHASE "A" & "B" - NOT ACTUATED
PHASE "C"- ACTUATED

MEMORY CIRCUIT - OFF
RECALL - OFF
MANUAL CONTROL - DISCONNECTED

CONTROLLER SKIPS PHASES WHICH ARE NOT ACTUATED, AND RESTS IN PHASE "B" GREEN

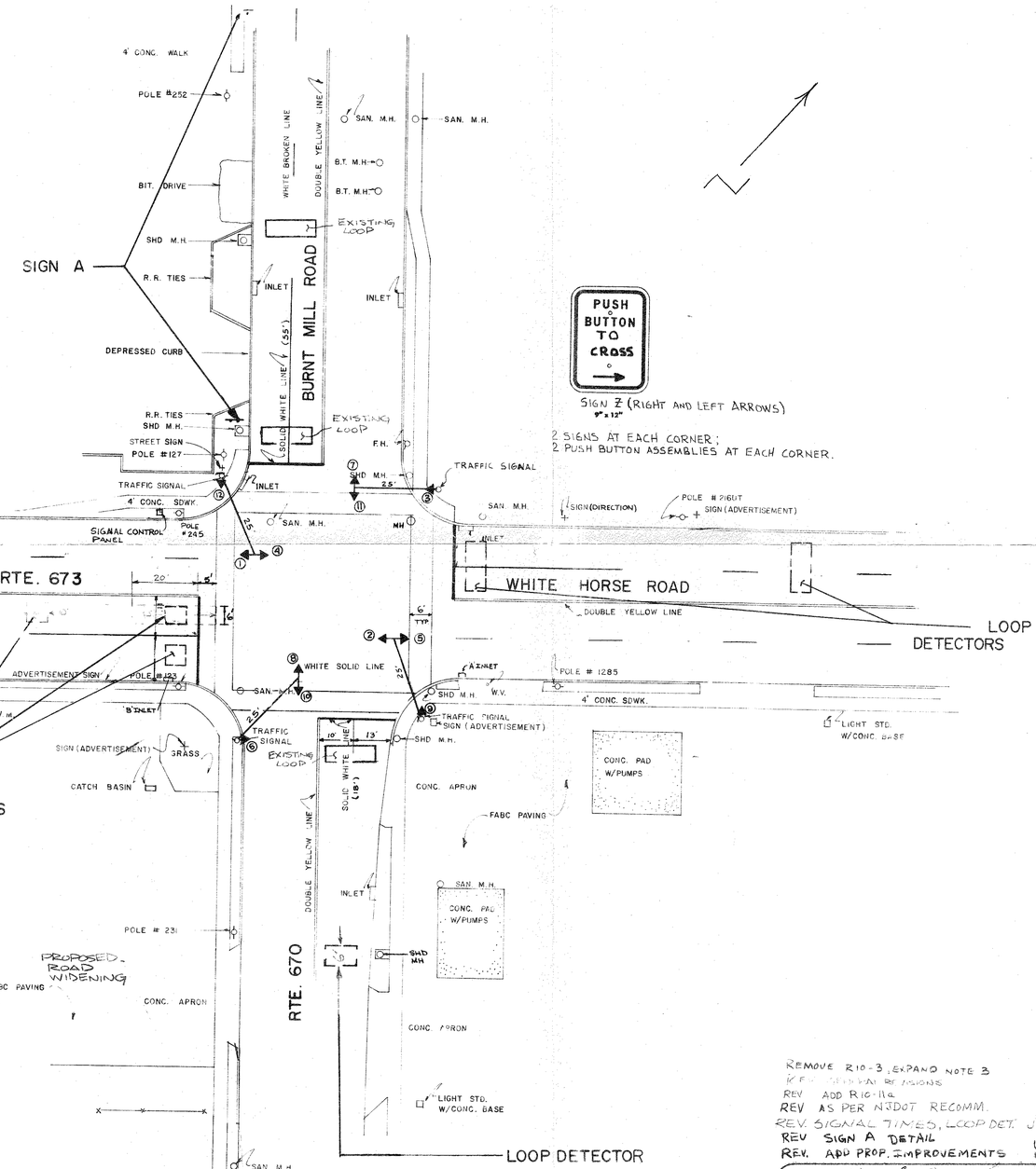
	PHASE	1&2	3,4,5,6	7,8,9,10,11,12	TIME (SECONDS)
RT 673 LEAD GREEN	A	G	R	R	5-19
LEAD GREEN CLEARANCE	A	G	R	R	2
RT 673 R.O.W.	B	G	G	R	11-29
CHANGE	B	Y	Y	R	4
CLEARANCE	B	R	R	R	1
RT 670 R.O.W.	C	R	R	G	10-26
CHANGE	C	R	R	Y	4
CLEARANCE	C	R	R	R	1

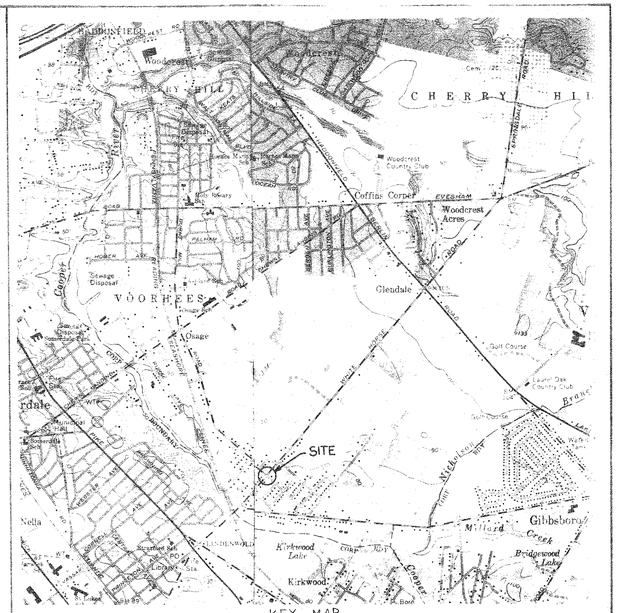
GENERAL NOTES:

1. Vehicle interval shall be two (2) seconds.
2. Guarantee 13 seconds pedestrian time during Phase B & C.
3. Memory for Phase A shall remain off. DETECTORS SHALL BE PRESENCE.
4. Memory for Phase C shall remain on. DETECTORS SHALL BE MOTION.
5. Phase A and Phase C shall be omittable; RECALL TO MINIMUM PHASE B.
6. Rest in Phase B.
7. Emergency flashing operation:
   yellow to Rt. 673
   red to Rt. 670
8. MEMORY FOR PHASE B SHALL REMAIN ON. DETECTORS SHALL BE MOTION

THREE PHASE SIGNAL

A	B	C





KEY MAP
1" = 2000'

TAKEN FROM 'CLEMENTON' AND 'RUNNEMEDE' USGS QUADRANGLES

PUSH BUTTON TO CROSS

SIGN Z (RIGHT AND LEFT ARROWS) 9" x 12"

2 SIGNS AT EACH CORNER;
2 PUSH BUTTON ASSEMBLIES AT EACH CORNER.

HEADS 1&2 HEADS 3-12

SIGN "A" 36" x 30"

CAMDEN COUNTY

Rev.	Description	By	Ck'd	Date
B	W. app 673 widened, LT lanes 673 removed	DJM	TJS	6-5-92
A	WB Exclusive LT lane	DJM	TJS	11-27-89

NOTES:
1. LOOP DETECTORS SHALL HAVE 3' OFFSET FROM LANE LINES & 1' OFFSET FROM CURB OR EDGE OF PAVEMENT.
2. PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH MUTCD.
3. SIGNAL HEAD NUMBER 3 SHALL BE EQUIPPED WITH LOUVERS FOR THE RED INDICATION, SO AS TO BE VISIBLE ONLY TO PEDESTRIANS.

LTS-1734 B

REMOVE R10-3, EXPAND NOTE 3 — WT 5-11-84
REV. AS PER REVISIONS — WT 3-5-84
REV ADD RIGHT — WT 1-25-84
REV AS PER NJDOT RECOMM. — WT 10-18-83
REV. SIGNAL TIMES, LOOP DET. JSM/WT 8-12-83
REV SIGN A DETAIL — WT 7-21-83
REV. ADD PROP. IMPROVEMENTS — WT 6-17-83

Douglas R. Long P.E. & L.S.
NJ 16341 PA 14574-E LA 10865 & 2394
Aug 2 1983

LONG ENGINEERING & SURVEYING CO.
P.O Box 641 Black Horse Pike
Turnersville, NJ 08012 (609) 629-9400

INTERSECTION DETAIL

AM CONSULTING ENGINEERS
ALEXANDER M. CHURCHILL ASSOCIATES
250 Route 73 Berlin, New Jersey 08009
609-767-6901
ENGINEERING · PLANNING LAND SURVEYING

AS BUILT PLAN
COUNTY RTS. 670 & 673
BURNT MILL ROAD & WHITE HORSE ROAD
VOORHEES TWP. CAMDEN CO., N.J.

Drawn T.G.K.
Checked J.J.G.
Scale 1" = 20'
Date APRIL 1981
Project V-159
Sheet of

9/29/81
ALEXANDER M. CHURCHILL
NEW JERSEY PE & LS LICENSE No. 12647

1/34

As Built

PLANS FOR

RECONSTRUCTION OF

BURNT MILL ROAD & CULVERT

(CAMDEN COUNTY ROAD NO. 670)

FROM SOMERDALE RD. TO WHITE HORSE RD.

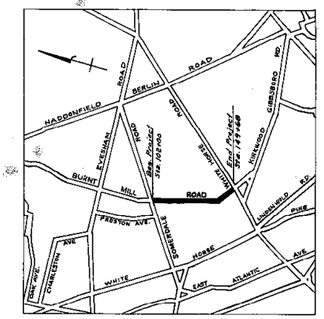
VOORHEES TOWNSHIP

DEP'T. OF TRANSPORTATION & PLANNING
COUNTY OF CAMDEN, NEW JERSEY
WILLIAM J. PALLADINO.....COUNTY ENGINEER
COUNTY COMPLEX, LINDENWOLD,.....NEW JERSEY

NOTES:

LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. CONTRACTOR IS TO FAMILIARZE HIMSELF WITH, AND VERIFY CONDITIONS AT SITE.

INDEX OF SHEETS	
NO.	DESCRIPTION
1	Cover Sheet
2	Typical Section
3	Distribution of Quantities
4	Estimate of Quantities
5-14	Plan & Profile Sheets
15-16	Culvert Plan
17-29	Cross Sections & Earth Work
30-34	Construction Details



LAYOUT & KEY MAP

Scale of 0 ¼ ½ ¾ 1 miles

LENGTH OF PROJECT
4768 LIN. FT.
0.903 MILES

STANDARD N. J. STATE HIGHWAY SPECIFICATIONS OF 1961 WILL GOVERN

CAMDEN COUNTY APPROVALS

6/1/70 DATE — CHAIRMAN Department of Transportation & Planning

6/5/70 DATE — COUNTY ENGINEER P.E. N.J. License No. 10486

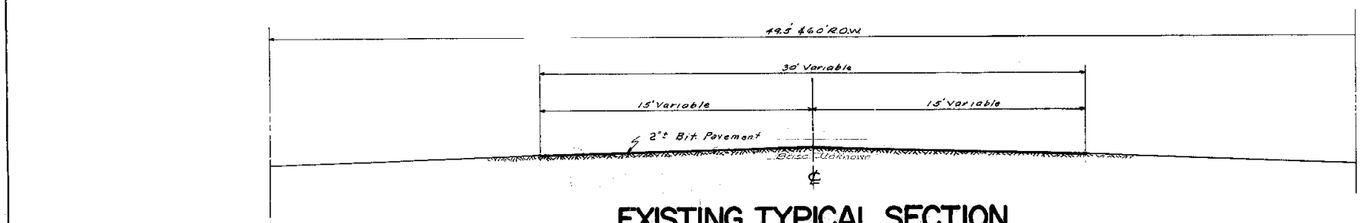
STATE APPROVALS

6-29-70 DATE — DISTRICT ENGINEER

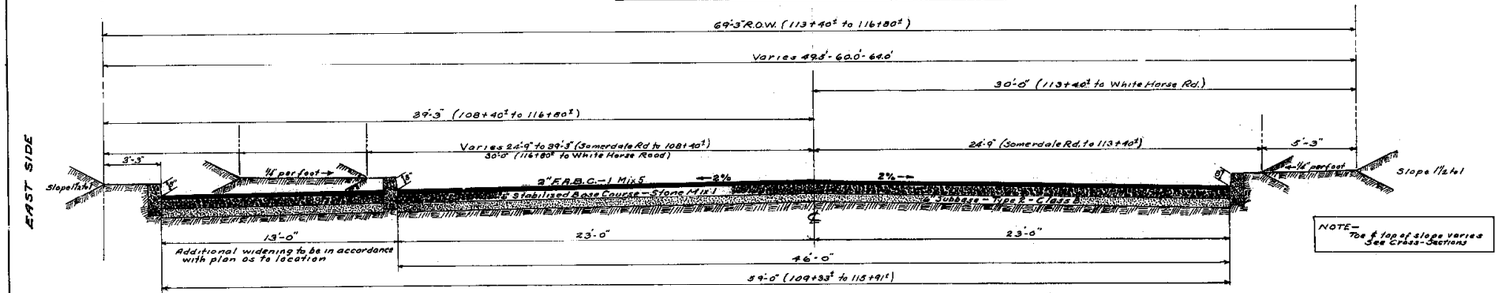
7/17/70 DATE — SUPERV. ENGINEER STATE AID

7-17-70 DATE — STATE HIGHWAY ENGINEER

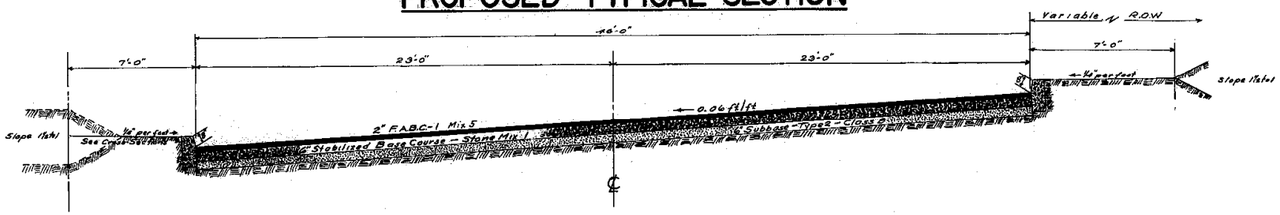
DRAWER NO. 5-2



EXISTING TYPICAL SECTION



PROPOSED TYPICAL SECTION



PROPOSED MAXIMUM SUPERELEVATION

128+67.21 to 133+13.35 (Back)

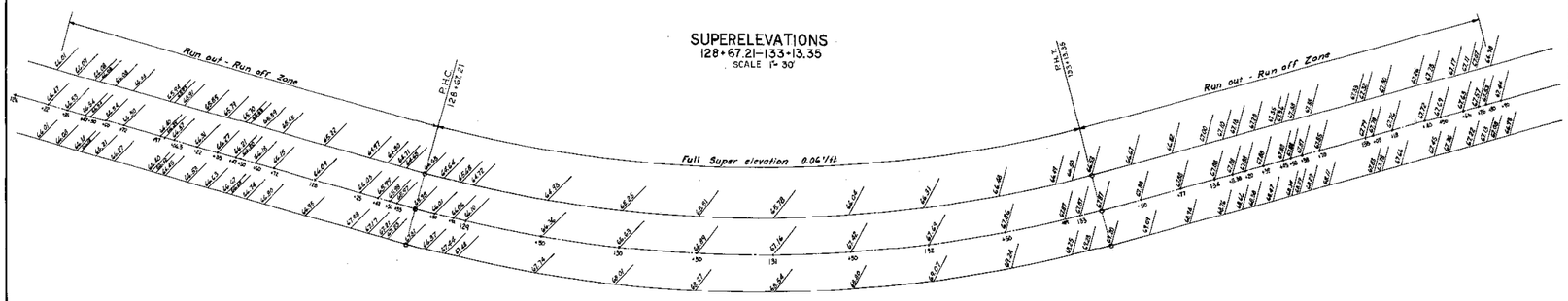
BURNT MILL ROAD - #670
VOORHEES TOWNSHIP

DRAWER NO. 670
PLAN NO. 2-2

DISTRIBUTION OF QUANTITIES

ITEM NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8
	Roadway Excavation Earth C.Y.	Excavation Subsurface Structures Rock and Boulders Peat Muck C.Y.	Subbase 6" Thick Type 2 Class B C.Y.	Channel Excavation C.Y.	Bituminous Stabilized Base Course 6" Thick Stone Mat S.Y.	Prime Coat AC 30 w/ AEC 70 Gal.	FABRIC Surface Treatment S.Y.	Construct 18" Reinforced Conc. Pipe Culvert Storm Drain L.F.	Construct 18" Reinforced Conc. Pipe Culvert Storm Drain L.F.	Construct 22"x13" Corrugated Aluminum Pipe (46) L.F.	Conn. Special Manhole Using Existing Castings Unit	Construct Manhole Unit	Construct Special Manhole (18" Dia.) Unit	Construct Inlet Type B Unit	Construct Inlet Type C Unit	Construct Inlet Type B (Modified) Unit	Reset Manhole or Inlet where Unit	Construct Concrete Curb & Gutter 6" Thick S.Y.	Construct Concrete Sidewalk 4" Thick (Class C) S.Y.	Construct Reinforced Conc. Pole Sidewalk 6" Thick S.Y.	Construct 7" PCC Driveway S.Y.	Reset Water Valve Box Unit	Reset Roof Drain Unit	Class 'C' Concrete in Structures C.Y.	Reset Monument Unit	Fertilizing & Seeding S.Y.	Construct 4" Topsoiling and Seeding S.Y.	Sodding S.Y.	Clearing Site L.S.	Relocate Water Meter & Box Unit	18" Corr. Alum. Pipe (Algae) L.F.	Brick Up Pipe Unit	Beam Type Guard Rail L.F.								B-1 Foundation Excavation C.Y.	B-2 Cut Stone Set in Cement Stone Bed C.Y.	B-3 Grouted Rip Rap Stone Protection	B-4 Class 'C' Conc. in Structures C.Y.	B-5 Class 'D' Conc. in Structures C.Y.	B-6 Conc. Parapet Class 'A' L.F.	B-7 Reinf. Steel in Structures Lbs.	B-8 Metal Bridge Railing (Steel Rail) L.F.
Plan Sheet No. 5 Sta. 102+00 to Sta. 106+00	578		194		1142	117	2035	.5				1		1		1.		822	19		1.	11						76				6															
Plan Sheet No. 6 Sta. 106+00 to Sta. 112+00	1349		587		3519	362	3519		257					2				1129	4			27				1		89																			
Plan Sheet No. 7 Sta. 112+00 to Sta. 118+00	1852		620		3720	376	3720		605			1		4				1109				33						276						150 100													
Plan Sheet No. 8 Sta. 118+00 to Sta. 124+00	1354		511		3047	312	3047		600				1					1206	7	8		49			0.3			668																			
Plan Sheet No. 9 Sta. 124+00 to Sta. 130+00	2328		511		3047	312	3047		101	422				1	2			1190				24					334	210																			
Plan Sheet No. 10 Sta. 130+00 to Sta. 136+00	2894		511		3047	312	3047		273					1				1173	2			104					350	514	105																			
Plan Sheet No. 11 Sta. 136+00 to Sta. 142+00	1827		526		3153	316	3153		686					4				1166	293	20	35	53	1		1.7			477			3																
Plan Sheet No. 12 Sta. 142+00 to Sta. 148+00	1652		529		3177	318	3177		229	58				3			2	1141	374	40		26	3	20	1.0			383			3																
Plan Sheet No. 13 Sta. 148+00 to Sta. 154+60	341		141		847	85	873			44	1			3			1	346	85	6		17						130				10															
Plan Sheet No 14				231																																										
Plan Sheets Nos 15 & 16 Box Culvert																																								640	31	625	105	30	80	17350	70
If and Where Directed		50															17															2															
Totals	14175	50	4,130	231	24,780	2,500	25,741	5	2,253	544	1	2	1	18	2	1	20	9,294	784	74	51	344	4	20	3	1	4004	2,881	105	Lump Sum	6	16	2	150 100						640	31	625	105	30	80	17350	70

BURNT MILL ROAD - #670
VOORHEES TOWNSHIP
DRAWER NO. 670
PLAN NO. 23



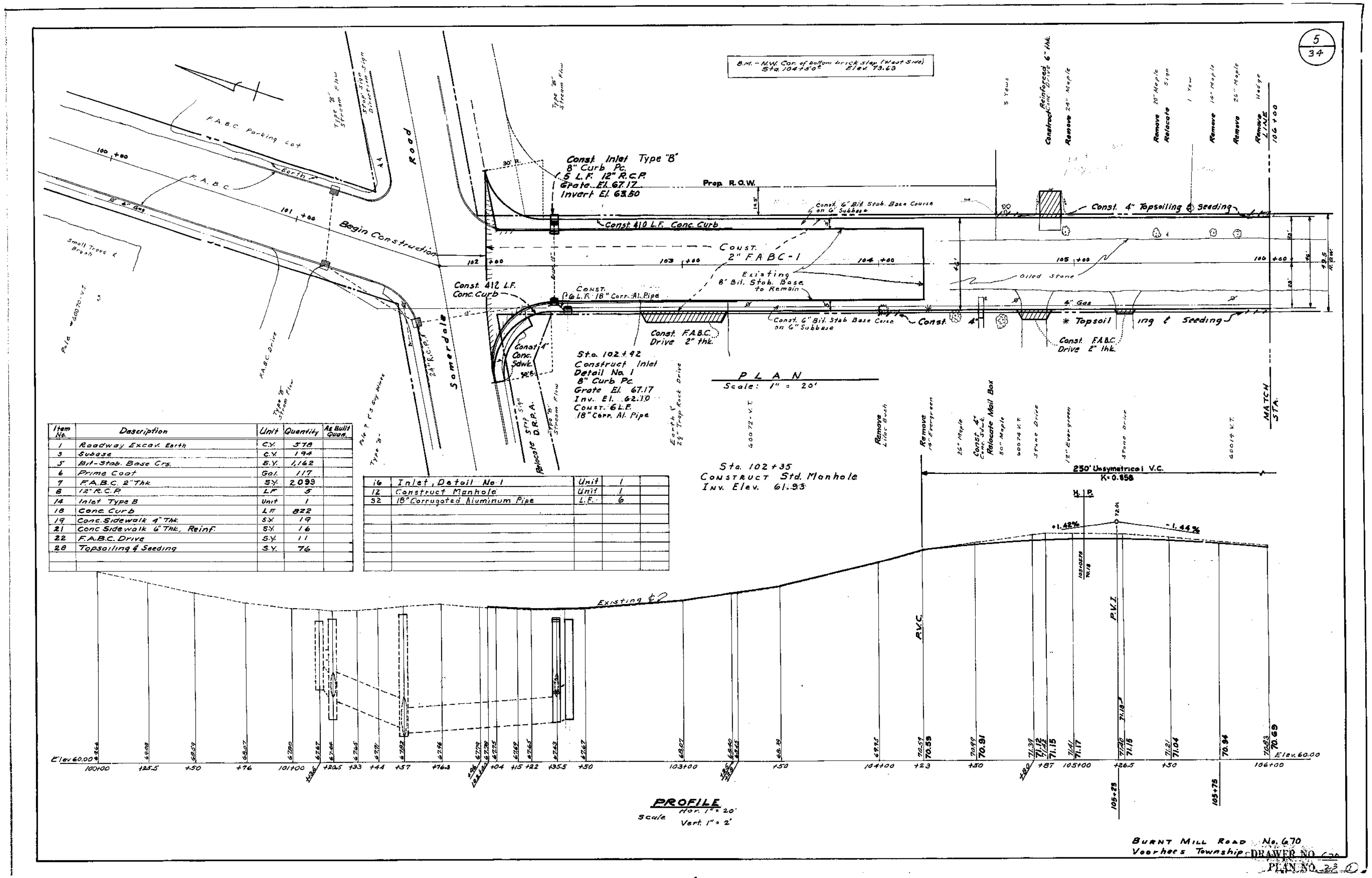
ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	AS BUILT QUANTITY
1	Roadway Excavation, Earth	14,175 C.Y.	16,881 C.Y.
2	Excavation Subsurface Structures, Additional Depth & Test Pits	50 C.Y.	34 C.Y.
3	Subbase 6" Thk. Type 2 Class B	4,190 C.Y.	5862 S.Y.
4	Channel Excavation	231 C.Y.	231 C.Y.
5	Bituminous Stabilized Base Course 6" Thk. Stone Mix 1	24,780 S.Y.	30,780 S.Y.
6	Prime Coat MC-30 or MC-70	2500 Gal.	4620 Gals.
7	FABC-1 Surface Pavement 2" Thk. Mix 5	25,741 S.Y.	25,741 S.Y.
8	Const. 12" Reinforced Conc. Culvert Storm Drain	5 L.F.	5 L.F.
9	Const. 18" Reinforced Conc. Culvert Storm Drain	2,755 L.F.	2759 L.F.
10	Const. 22"x13" Corr. Aluminum Pipe (16 Gage)	824 L.F.	824 L.F.
11	Const. Special Manhole Using Existing Castino	1 Unit	1 Unit
12	Const. Manhole	2 Unit	6 Units
13	Const. Special Manhole (10' Deep)	1 Unit	2 Units
14	Const. Inlet Type B	19 Unit	19 Units
15	Const. Inlet Type B Detail No.2	2 Unit	2 Units
16	Construct Inlet Type B Detail No.1	1 Unit	1 Unit
17	Reset Manhole Head (if and where)	20 Unit	20 Units
18	Const. Conc. Curb 9"X20" Class "B"	9,294 L.F.	9333 L.F.
19	Const. Conc. Sdwk. 4" Thk. Class "C"	784 S.Y.	709 S.Y.
20	Const. Conc. Sdwk 6" Thk. Class "C"	74 S.Y.	135.00 S.Y.
21	Const. Reinforced Conc. Sdwk. 6" Thk. Class "C"	51 S.Y.	140.0 S.Y.
22	Const. F.A.B.C.-1 Drive 2" Thk.	344 S.Y.	538.0 S.Y.
23	Reset Water Valve Box	4 Unit	4 Units
24	Reset Roof Drain	20 L.F.	95 L.F.
25	Class "C" Conc. in Structures	3 C.Y.	4.5 C.Y.
26	Reset Monument	1 Unit	0 Units
27	Fertilizing & Seeding	684 S.Y.	684 S.Y.
28	Const. 4" Topsoiling & Seeding	2,821 S.Y.	4,849 S.Y.

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	AS BUILT QUANTITY
29	Sodding	105 S.Y.	250 S.Y.
30	Clearing Site	Lump Sum	L.S.
31	Relocate Water Meter & Box	6 Unit	6 Units
32	18" Corr. Alum. Pipe (16 Gage)	16 L.F.	16 L.F.
33	Brick Up Pipe	2 Unit	2 Units
34	Beam Type Guard Rail	100 L.F.	100 L.F.
35			
36			
37			
38			
39			
B-1	Foundation Excavation	210 C.Y.	340 C.Y.
B-2	Crushed Stone Bed.	31 C.Y.	31 C.Y.
B-3	Grouted Rip Rap Slope Protection	625 S.Y.	82 S.Y.
B-4	Class "C" Concrete in Structures	50 C.Y.	50 C.Y.
B-5	Class "B" Concrete in Structures	90 C.Y.	90 C.Y.
B-6	Concrete Parapet Class A	80 L.F.	80 L.F.
B-7	Reinforcement Steel in Structures	17,395 LBS.	17,395 Lbs.
B-8	Metal Bridge Railing (alum.) 1-Rail	70 L.F.	70 L.F.
	SUPPLEMENTAL		
S-1	12" Corr. Alum. Pipe	58 L.F.	58 L.F.
S-2	Pavement Excavation	73 S.Y.	73 S.Y.

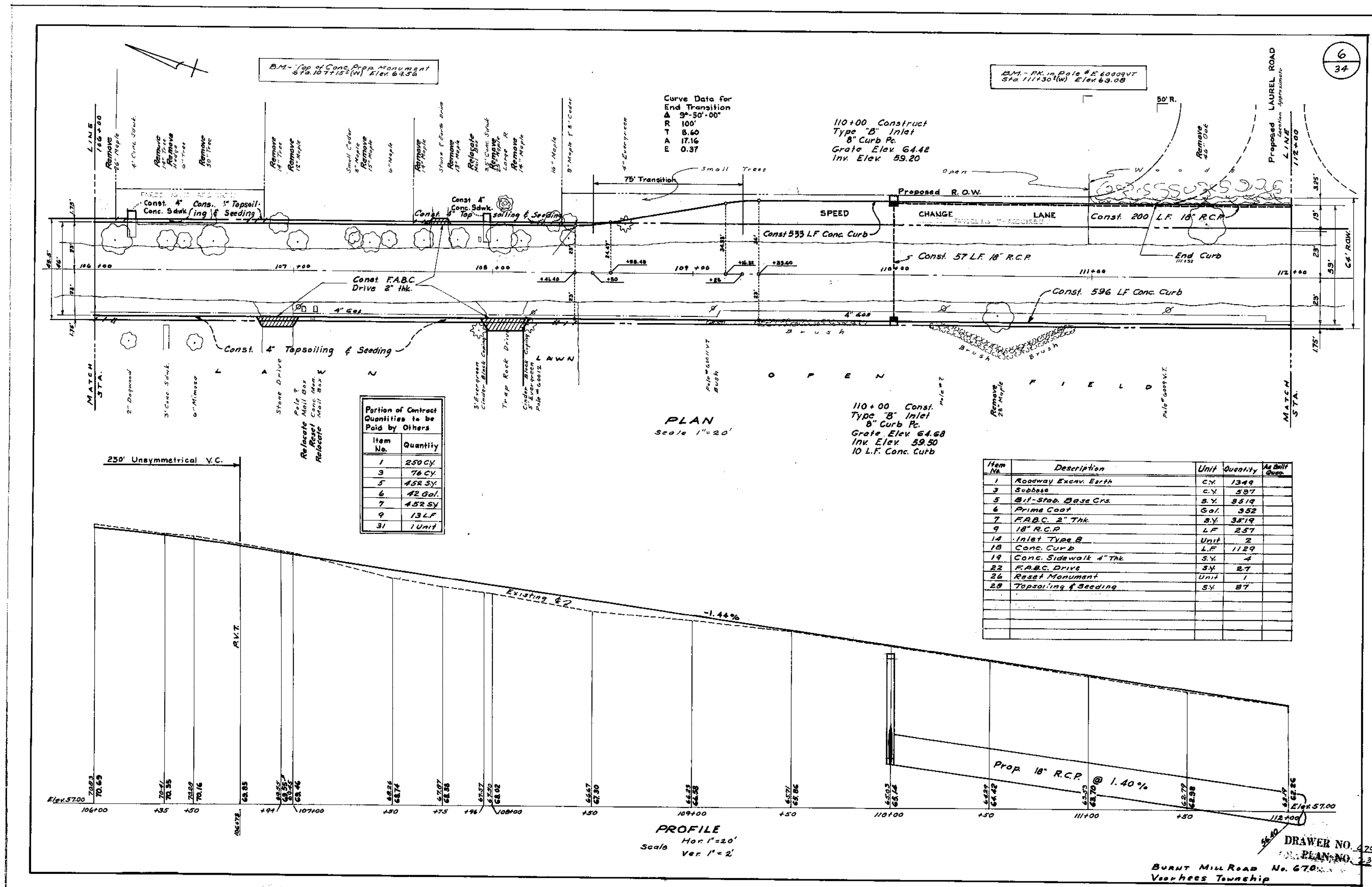
BURNT MILL ROAD No. 670
VOORHEES TWP.

DRAWER NO. 220
PLAN NO. 23



Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	578	
3	Subase	C.Y.	194	
5	Bit-Stab. Base Crs.	S.Y.	1,162	
6	Prime Coat	Gal.	117	
7	F.A.B.C. 2" Thk.	S.Y.	2099	
8	12" R.C.P.	L.F.	5	
14	Inlet Type B	Unit	1	
18	Conc. Curb	L.F.	822	
19	Conc. Sidewalk 4" Thk.	S.Y.	19	
21	Conc. Sidewalk 6" Thk., Reinf.	S.Y.	16	
22	F.A.B.C. Drive	S.Y.	11	
28	Topsoiling & Seeding	S.Y.	76	

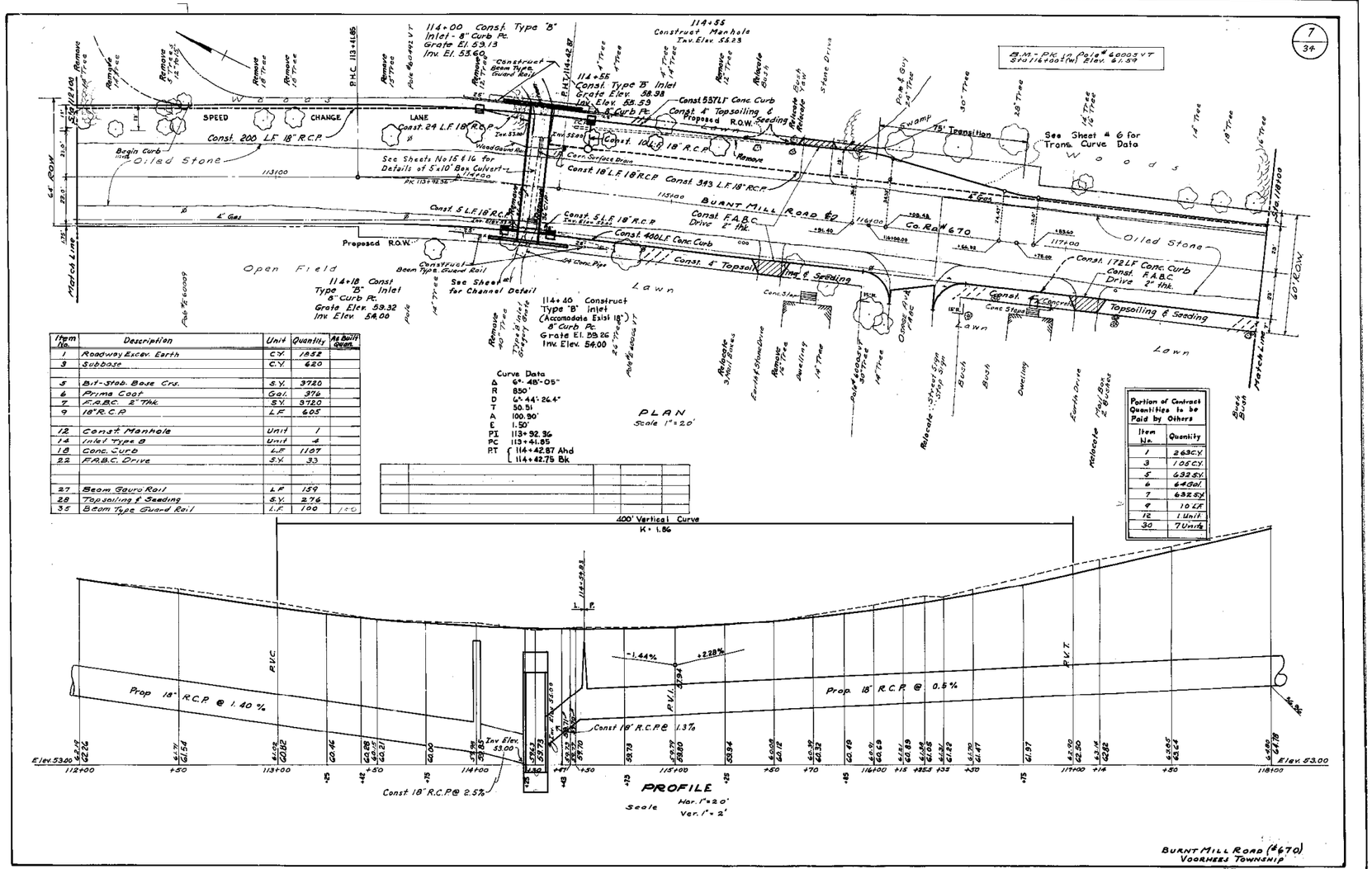
16	Inlet, Detail No. 1	Unit	1	
12	Construct Manhole	Unit	1	
32	18" Corrugated Aluminum Pipe	L.F.	6	



Portion of Contract Quantities to be Paid by Others

Item No.	Quantity
1	250 C.Y.
3	76 C.Y.
5	452 S.Y.
6	42 Gal.
7	452 S.Y.
9	13 L.F.
31	1 Unit

Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	1349	
3	Subbase	C.Y.	587	
5	Bit-Stab. Base Crs.	S.Y.	8519	
6	Prime Coat	Gal.	352	
7	F.A.B.C. 2" Thk.	S.Y.	3519	
9	18" R.C.P.	L.F.	257	
14	Inlet Type B	Unit	2	
18	Conc. Curb	L.F.	1129	
19	Conc. Sidewalk 4" Thk.	S.Y.	4	
22	F.A.B.C. Drive	S.Y.	27	
26	Reset Monument	Unit	1	
28	Topsoiling & Seeding	S.Y.	87	



Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	1852	
3	Subbase	C.Y.	620	
5	Bit-Stab. Base Crs.	S.Y.	3720	
6	Prime Coat	Gal.	376	
7	F.A.B.C. 2" Thk.	S.Y.	3720	
9	18" R.C.P.	L.F.	605	
12	Const. Manhole	Unit	1	
14	Inlet Type B	Unit	4	
18	Conc. Curb	L.F.	1107	
22	F.A.B.C. Drive	S.Y.	33	
27	Beam Guard Rail	L.F.	159	
28	Topsoiling & Seeding	S.Y.	276	
35	Beam Type Guard Rail	L.F.	100	

Curve Data
Δ 6° 48'-05"
R 850'
D 6° 44'-24.4"
T 50.51
A 100.90'
E 1.50'
PI 113+92.36
PC 113+41.85
PT { 114+42.87 Ahd
114+42.75 Bk

PLAN
Scale 1"=20'

PROFILE
Scale Hor. 1"=20'
Ver. 1"=2'

Portion of Contract Quantities to be Paid by Others

Item No.	Quantity
1	263 C.Y.
3	105 C.Y.
5	632 S.Y.
6	64 Gal.
7	632 S.Y.
9	10 L.F.
12	1 Unit
30	7 Units

BURNT MILL ROAD (670)
VOORHEES TOWNSHIP

DRAWER NO. 620
PLAN NO. 23

B.M. PK in Pole # 60301
Sta 120+45 (W) Elev. 68.22

Sta. 119+50
Const. Special M.H
Inv. 57.71

Sta. 118+00

Sta. 124+00

Const. 150 L.F. 18" R.C.P.

Oiled Stone

Const. Manhole
Inv. 57.71

Const. 600 LF Conc Curb

Const. 450 L.F. 18" R.C.P.

BURNT MILL ROAD Co. Rd. # 670

Const. F.A.B.C. Drive 2" thk.

Const. Conc. Sdwk 4" thk.

Const. 4" Topsoiling & Seeding This Side

Relocate Fence

Lawn

Match Line

Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	1354	
3	Subbase	C.Y.	811	
5	Bit-Stab Base Crs.	S.Y.	3067	
6	Prime Coat	Gal.	312	
7	F.A.B.C. 2"Thk.	S.Y.	3067	
9	18" R.C.P.	L.F.	600	
13	Special Manhole (10' Deep)	Unit	1	
18	Conc. Curb	L.F.	1200	
19	Conc. Sdwk. 4" Thk.	S.Y.	7	
20	Conc. Sdwk. 6" Thk.	S.Y.	8	
22	F.A.B.C. Drive	S.Y.	49	
25	Class 'C' Conc. in Struct.	C.Y.	0.3	
28	Topsoiling & Seeding	S.Y.	648	

PLAN
Scale 1"=20'

230' Unsymmetrical Vertical Curve
K = 0.6446

60' V.C.
K = 0.045

-0.40%
+2.28%
-1.00%
+2.5%

Existing E.O.

Prop. 18" R.C.P. @ 0.5%

P.V.C.
P.V.T.

Elev. 57.00

PROFILE
Scale Hor. 1"=20'
Var. 1"=2'

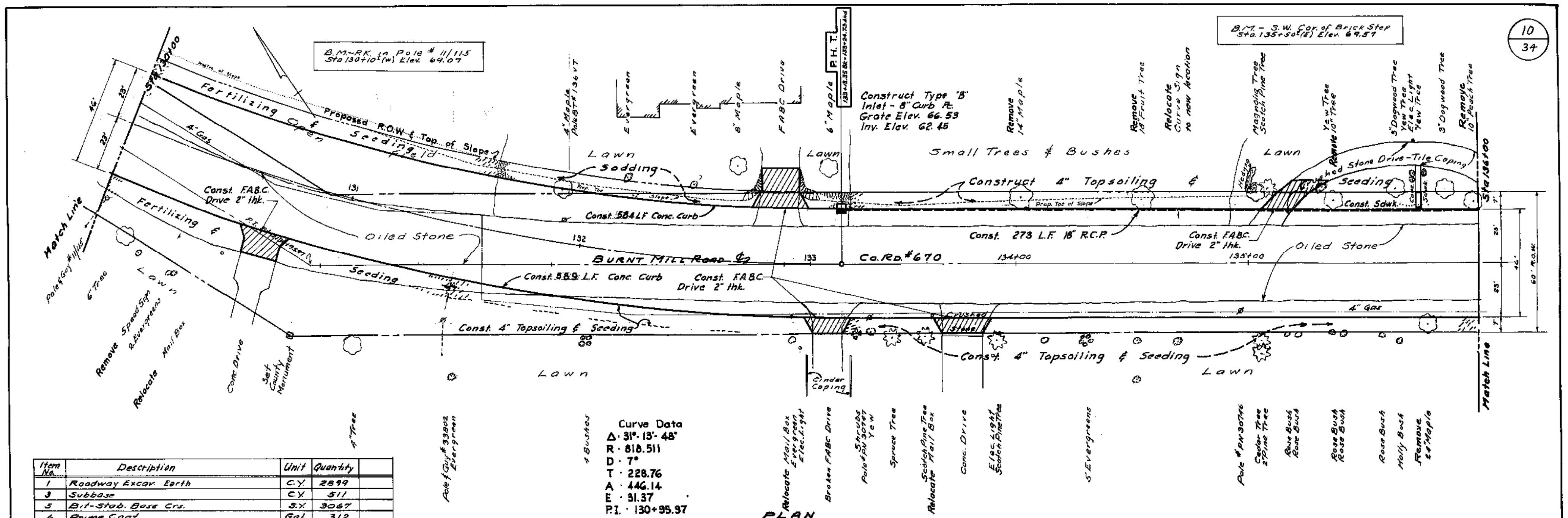
BURNT MILL ROAD (Co. #670)
VOORHEES TOWNSHIP

DRAWING NO. C-30
PLAN NO. 23

Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	2333	
3	Subbase	C.Y.	311	
5	Bit.-Stab. Base Crs.	S.Y.	3067	
6	Prime Coat	Gal.	312	
7	F.A.B.C. 2" Thk.	S.Y.	3067	
9	18" R.C.P.	L.F.	101	
10	22"x13" Corr. Alum. Pipe (16 Gage)	L.F.	422	
14	Inlet Type B	Unit	1	
15	Inlet Type B Det No. 2	Unit	2	
18	Conc. Curb	L.F.	1190	
22	F.A.B.C. Drive	S.Y.	24	
28	Topsoiling & Seeding	S.Y.	210	
27	Fertilizing & Seeding	S.Y.	334	

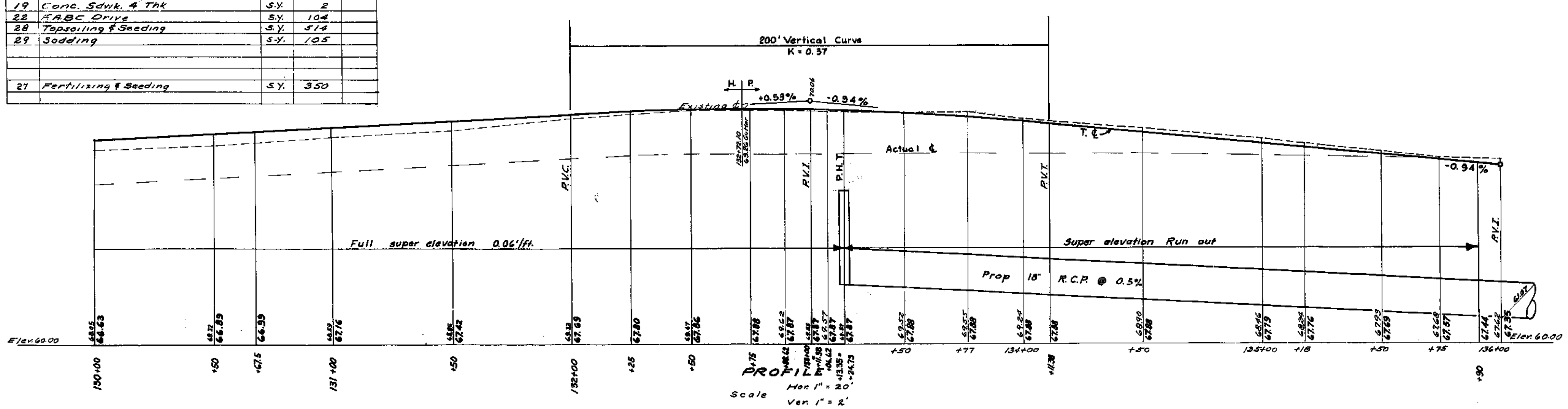
PROFILE
Scale Hor. 1" = 20'
Ver. 1" = 2'

BURNT MILL ROAD ("670)
VOORHEES TOWNSHIP



Curve Data
Δ · 31°- 13'- 48"
R · 818.511
D · 7°
T · 228.76
A · 446.14
E · 31.37
P.I. · 130+95.97

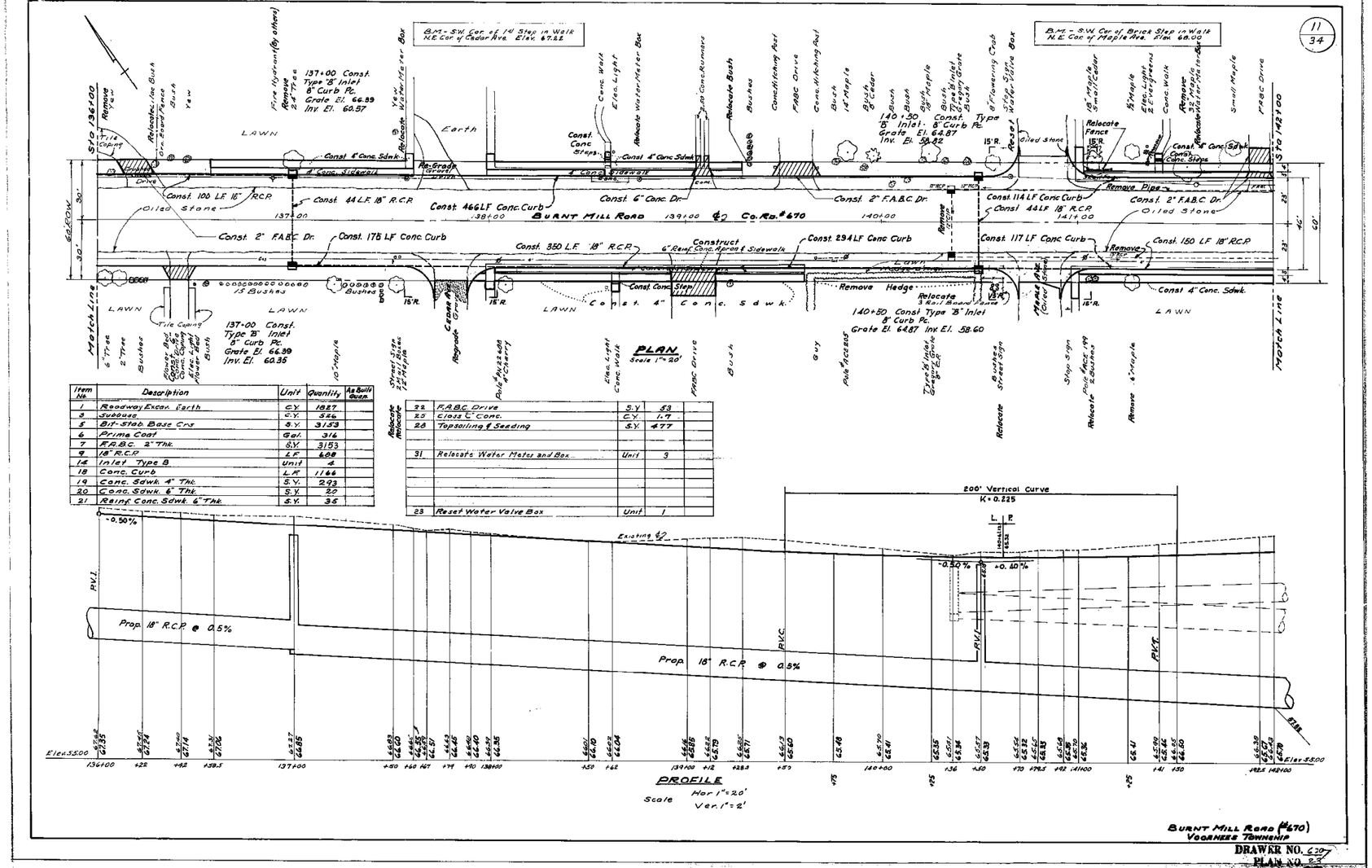
Item No.	Description	Unit	Quantity	
1	Roadway Excav. Earth	C.Y.	2899	
3	Subbase	C.Y.	511	
5	Bit-Stab. Base Crs.	S.Y.	3067	
6	Prime Coat	Gal.	312	
7	F.A.B.C. 2" Thk.	S.Y.	3067	
9	18" R.C.P.	L.F.	273	
14	Inlet Type B	Unit	1	
18	Conc. Curb	L.F.	1173	
19	Conc. Sdwk. 4 Thk	S.Y.	2	
22	F.A.B.C. Drive	S.Y.	104	
28	Topsoiling & Seeding	S.Y.	514	
29	Sodding	S.Y.	105	
27	Fertilizing & Seeding	S.Y.	350	



BURNT MILL ROAD #670
VOORHEES TOWNSHIP

DRAWER NO. 670
PLAN NO. 23

10/34



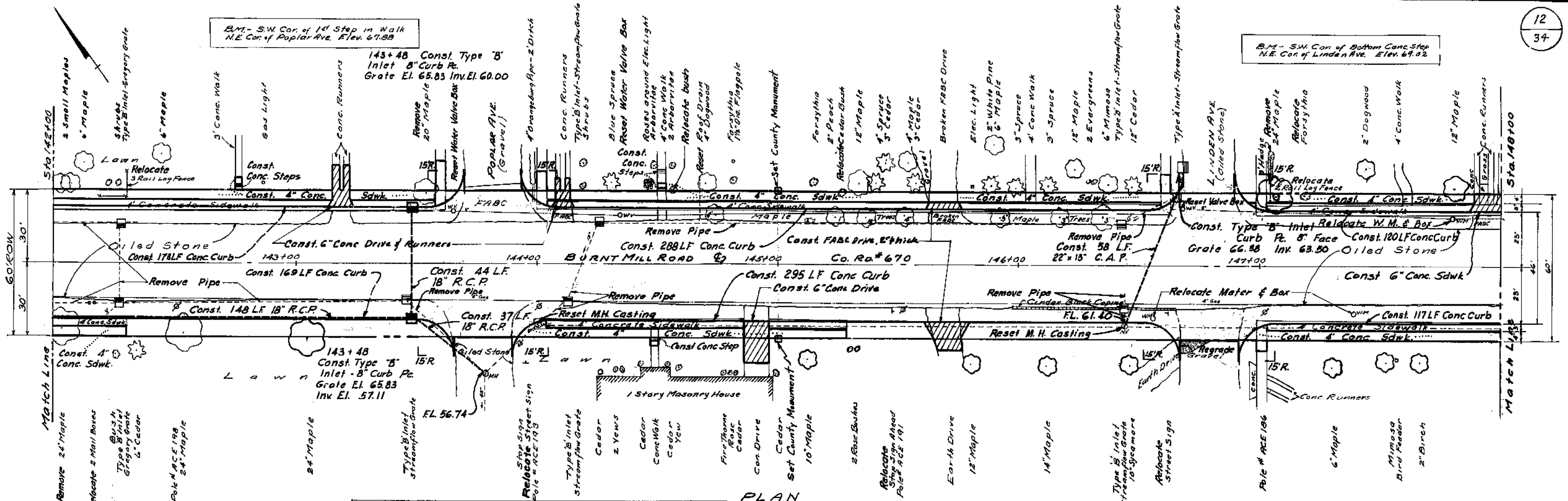
Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	1827	
3	Subbase	C.Y.	526	
5	Bit.-Stab. Base Crs	S.Y.	3153	
6	Prime Coat	Gal.	316	
7	F.A.B.C. 2" Thk.	S.Y.	3153	
9	18" R.C.P.	L.F.	628	
14	Inlet Type B	Unit	4	
18	Conc. Curb	L.F.	1166	
19	Conc. Sdwk. 4" Thk.	S.Y.	293	
20	Conc. Sdwk. 6" Thk.	S.Y.	27	
21	Reinf. Conc. Sdwk. 6" Thk.	S.Y.	35	
22	F.A.B.C. Drive	S.Y.	53	
25	Class "C" Conc.	C.Y.	1.7	
28	Topsoiling & Seeding	S.Y.	477	
31	Relocate Water Meter and Box	Unit	3	
23	Reset Water Valve Box	Unit	1	

BURNT MILL ROAD (#670)
VOORHEES TOWNSHIP
DRAWER NO. 620
PLAN NO. 23

12/34

B.M. - S.W. Cor. of 1st Step in Walk N.E. Cor. of Poplar Ave. Elev. 67.88

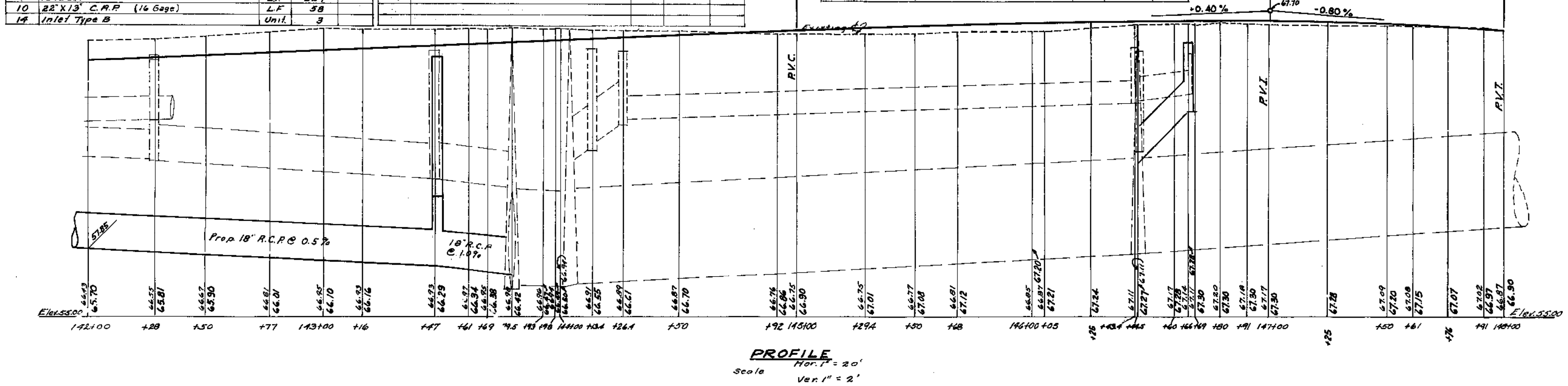
B.M. - S.W. Cor. of Bottom Conc. Step N.E. Cor. of Linden Ave. Elev. 69.02



PLAN
Scale 1" = 20'

Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	1652	
3	Subbase	C.Y.	529	
5	Bit-Stab. Base Crs.	S.Y.	3177	
6	Prime Coat	Gal.	318	
7	F.A.B.C. 2" Thk.	S.Y.	3177	
9	18" R.C.P.	L.F.	229	
10	22" X 13" C.A.P. (16 Gage)	L.F.	58	
14	Inlet Type B	Unit	3	
17	Reset Manhole Head	Unit	2	
18	Conc. Curb	L.F.	1141	
19	Conc. Sdwk. 4" Thk.	S.Y.	374	
20	Conc. Sdwk. 6" Thk.	S.Y.	40	
22	F.A.B.C. Drive	S.Y.	26	
25	Class C Conc.	C.Y.	1.0	
28	Topsoiling & Seeding	S.Y.	383	
31	Relocate Water Meter & Box	Unit	3	
23	Reset Water Valve Box	Unit	3	
24	Reset Roof Drains	L.F.	20	

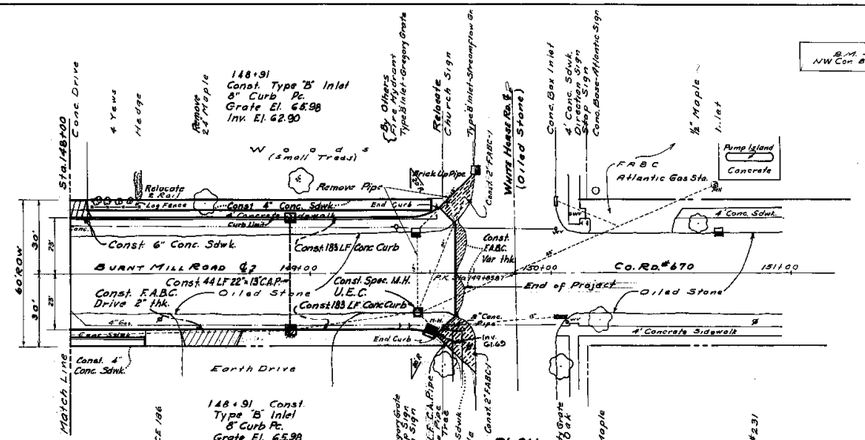
300' Unsymmetrical V.C.
K = 0.40



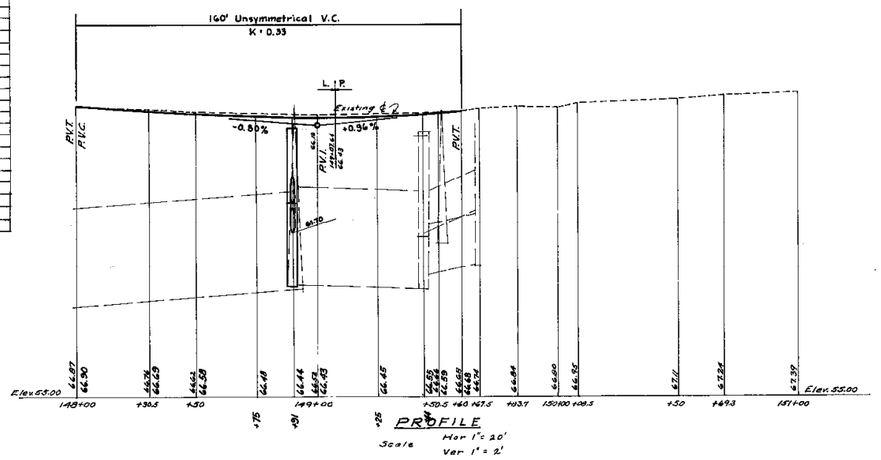
PROFILE
Scale Hor. 1" = 20' Ver. 1" = 2'

Burnt Mill Road #670
Voorhees Township
Drawer No. 620
Plan No. 23
8

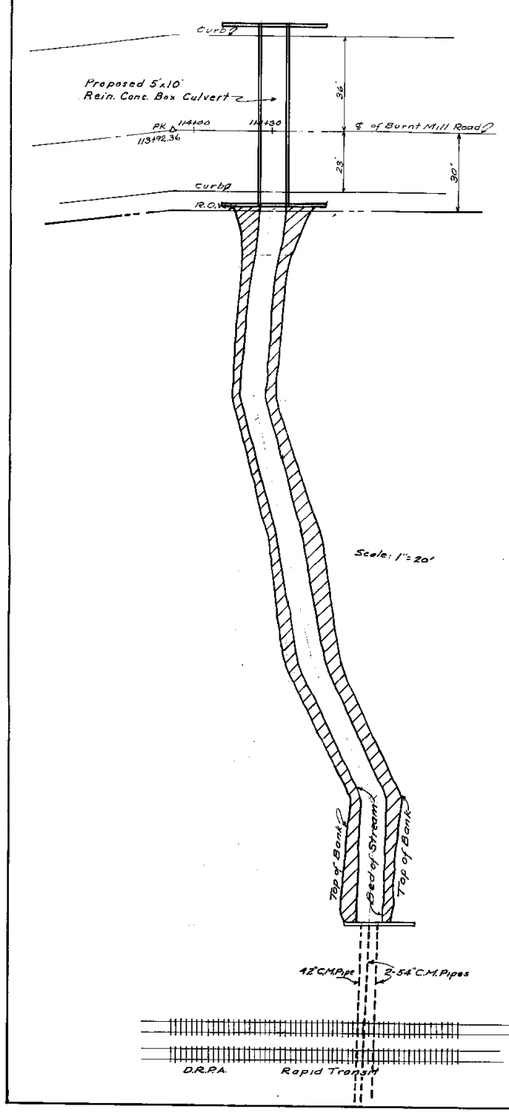
B.M. = Elev. on Hydrant
NW Cor. Burnt Mill Rd & White Horse Rte. Elev. 68.22

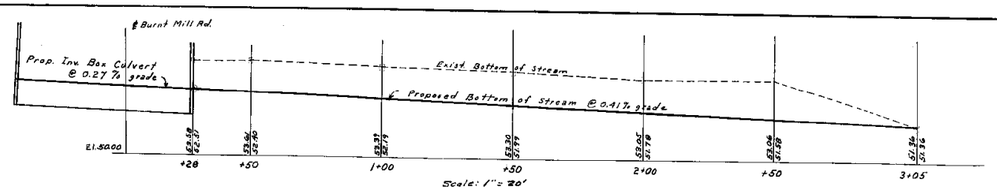


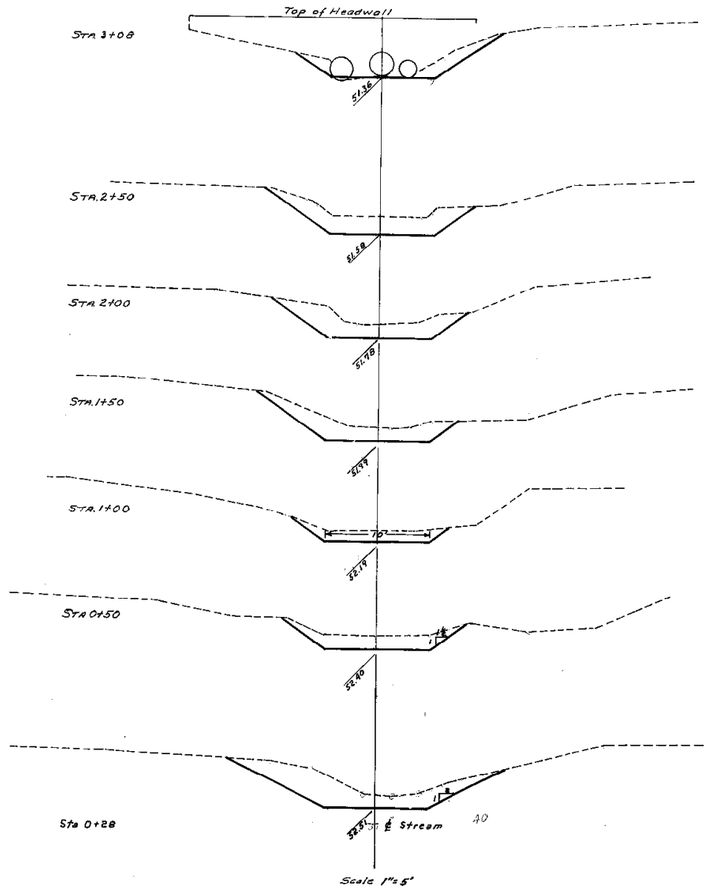
Item No.	Description	Unit	Quantity	As Built Quan.
1	Roadway Excav. Earth	C.Y.	341	
3	Subbase	C.Y.	141	
5	Bit-Stab. Base Crs.	S.Y.	847	
6	Prime Coat	Gal.	85	
7	F.A.B.C. 2" Thk.	S.Y.	872	
10	22"x13" C.M.P.	L.F.	44	
14	Inlet Type B	Unit	3	
17	Reset Manhole Head	Unit	1	
18	Conc. Curb	L.F.	366	
19	Conc. Sdwk. 4" Thk.	S.Y.	85	
20	Conc. Sdwk. 6" Thk.	S.Y.	6	
22	F.A.B.C. Drive	S.Y.	17	
28	Topsoiling & Seeding	S.Y.	180	
11	Const. Special Manhole U.E.C.	Unit	1	
32	18" Corr. Alum. Pipe (16 Gage)	L.F.	10	



BURNT MILL ROAD #670
VOORHEES TOWNSHIP
DRAWING NO. 170
PLAN NO. 2311





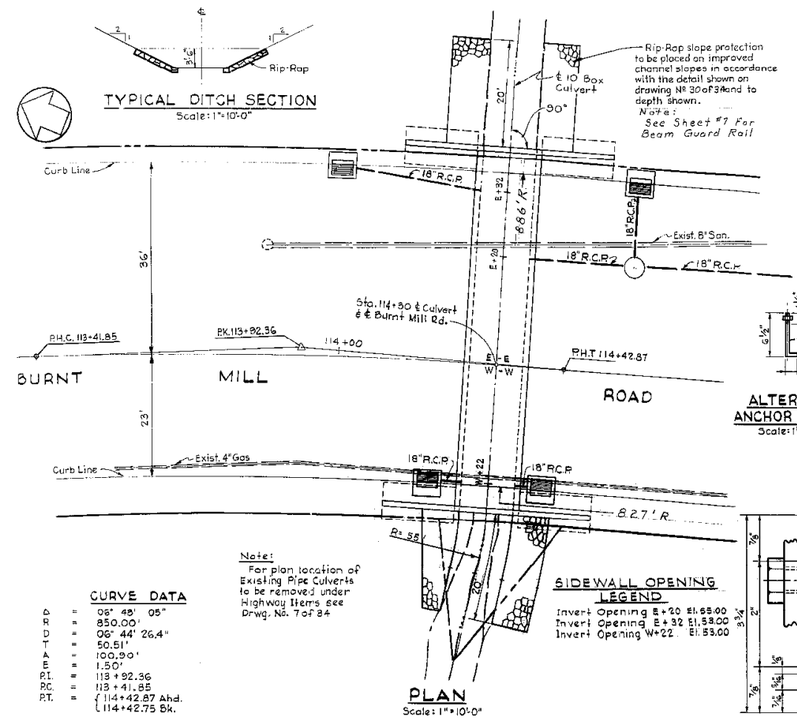


Station	Dist	Cut Area	Cut Volume
0+28	22	40	816
0+50	50	19	800
1+00	50	13	1950
1+50	50	25	1900
2+00	50	27	1400
2+50	55	27	1728
3+05		12	

$\frac{6394 \text{ Cu. Ft}}{27}$ = 231 Cu. Yd.

Channel Excavation = 231 Cu. Yd

DRAWER NO. 679
PLAN NO. 23

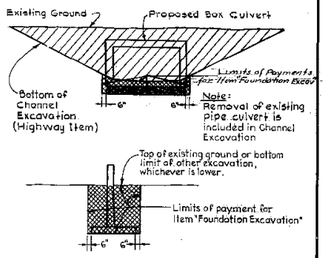


BAR LIST

MARK	SIZE	TYP	LENGTH	NO.	NOTES
Footing					
F501	5	Bt.	8'-0"	60	4 sets of 15
F502	5	Bt.	9'-3"	60	4 sets of 15
F503	5	St.	4'-8"	112	4 sets of 28
F401	4	St.	18'-6"	36	2 sets of 9
Walls					
W501	5	St.	6'-9"	56	
W502	5	St.	7'-2"	56	
W401	4	St.	6'-9"	20	
W402	4	St.	13'-8"	24	
W403	4	St.	12'-0"	12	
W404	4	St.	3'-11"	24	2 sets of 12
W405	4	Bt.	6'-7"	48	2 sets of 24
W406	4	Bt.	8'-7"	112	4 sets of 28
W407	4	Bt.	5'-5"	24	2 sets of 12
W408	4	Bt.	9'-11"	24	2 sets of 12
W409	4	St.	11'-8"	8	2 sets of 4
Culvert					
B5801	8	St.	11'-8"	88	
B5601	6	Bt.	6'-0"	166	2 sets of 83
B5602	6	Bt.	4'-0"	18	
B5401	4	St.	22'-10"	36	3sets of 18
B5402	4	St.	11'-6"	2	
T5801	8	St.	11'-8"	88	
T5601	6	Bt.	8'-7"	166	2 sets of 83
T5401	4	St.	22'-10"	44	3sets of 22
T5402	4	St.	11'-8"	88	
SW601	6	St.	6'-0"	64	4 sets of 16
SW401	4	St.	22'-6"	92	
SW402	4	St.	6'-8"	94	2 sets of 47

ESTIMATE OF QUANTITIES - BRIDGE

NO.	ITEM	UNIT	QUANT
B-1	FOUNDATION EXCAVATION.	C.Y.	210
B-2	CRUSHED STONE BED	C.Y.	31
B-3	GROUTED RIP RAP SLOPE PROTECTION	S.Y.	625
B-4	CLASS 'C' CONCRETE IN STRUCTURES	C.Y.	50
B-5	CLASS 'B' CONCRETE IN STRUCTURES	C.Y.	90
B-6	CONCRETE PARAPET CLASS - A	L.F.	80
B-7	REINFORCEMENT STEEL IN STRUCTURES	L.B.S.	11,395
B-8	METAL BRIDGE RAILING (alum) - 1 RAIL	L.F.	70



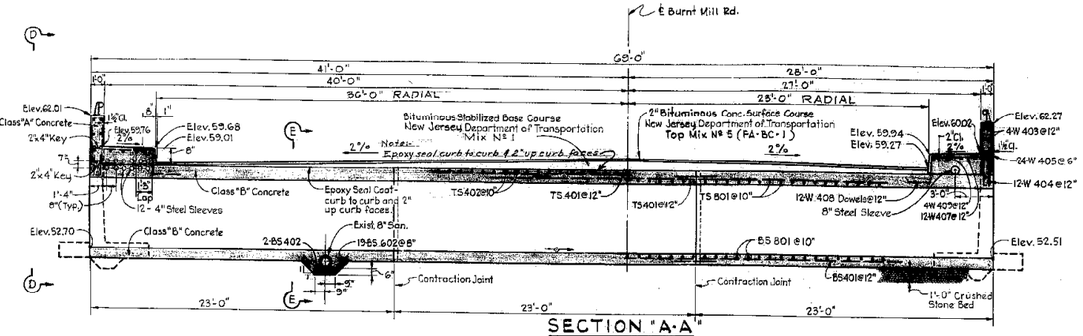
EXCAVATION AND COARSE AGGREGATE PAY LIMITS
Scale: 1/8"=1'-0"

GENERAL NOTES

1. Material for Posts, Bases, Rails and Rail Clamps shall be A.S.T.M. B221-66, Aluminum Alloy 6061-T6.
2. Material for Anchor Bolts shall be A.S.T.M. A276-65, Stainless Steel Annealed, type 430. As an alternate, type 302 may be used as a Bi-metallic Anchor with A.S.T.M. A36-63 as the embedded portion. The two materials shall be welded to develop the full strength of the embedded portion. Top Nuts shall be Aluminum Thick Nuts A.S.T.M. B211-66, Alloy 6061-T6, or Alloy 6262-T9, Class 2 Thread. Bottom Nuts shall be A.S.T.M. A325. Washers shall be A.S.T.M. B209-66, Alclad 2024-T4.
3. All Anchor Bolt holes and spaces between Base Plates and Concrete shall be thoroughly caulked with an Aluminum Impregnated Caulking Compound Conforming to Federal Specifications TT-C-55B, Consistency Grade 1.

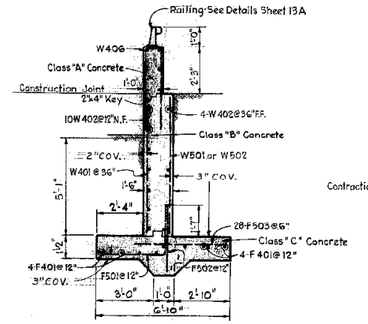
BURNT MILL ROAD - ("G70)
VOORHEES TOWNSHIP

DRAWER NO. 420
W.O. NO. 23



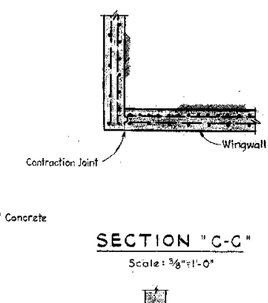
SECTION "A-A"

Scale: ¼"=1'-0"



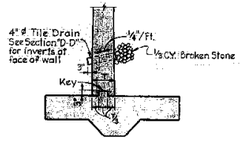
SECTION "B-B"

Scale: ⅜"=1'-0"



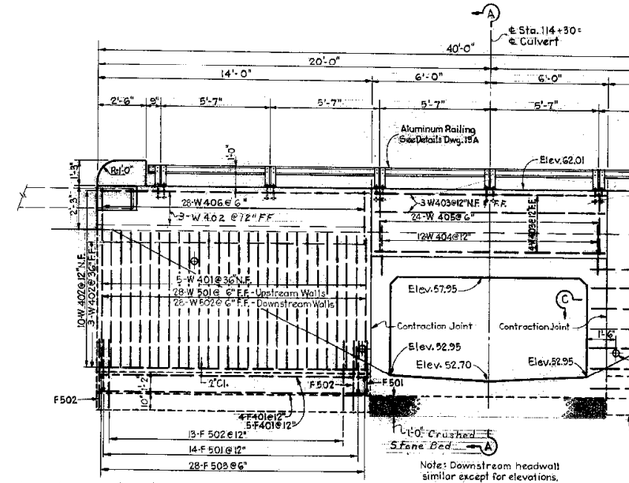
SECTION "C-C"

Scale: ⅜"=1'-0"



DRAIN DETAIL

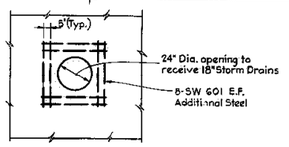
No Scale



Note: Downstream headwall similar except for elevations.

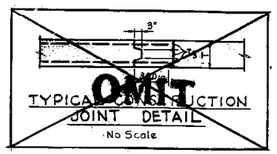
SECTION "D-D"

Scale: ⅜"=1'-0"



TYPICAL DETAIL OPENING IN SIDEWALLS

No Scale



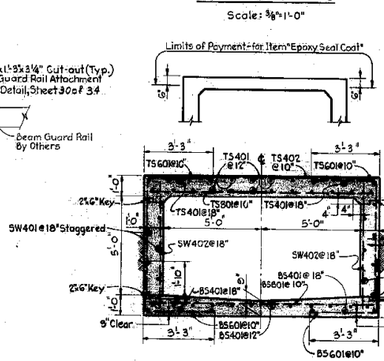
TYPICAL CONSTRUCTION JOINT DETAIL

No Scale

GENERAL NOTES

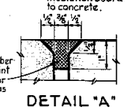
1. Design Specifications: A.A.S.H.O. 1969
2. Live Load: HS-20-44
3. Materials and Fabrication: N.J. State Highway Department 1961 Standard Specifications and Supplementary Specifications
4. Reinforced Concrete Box Culvert Barrel and Walls: f'_c 3000 p.s.i., Pc 1200 p.s.i. Reinforcing Steel: A.S.T.M. A615 Grade 40, f_s 20,000 p.s.i.
5. Traffic: No provisions for maintenance of traffic during construction.
6. Existing Gas Main to be relocated by others.
7. All exposed edges of concrete are to be chamfered ¾"

WATER STOP DETAILS

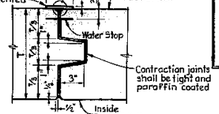


SECTION "E-E"

Scale: ⅜"=1'-0"

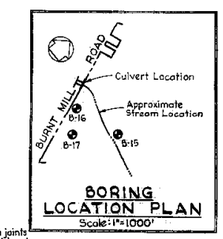


DETAIL "A"



TYPICAL CONTRACTION JOINT DETAILS

No Scale

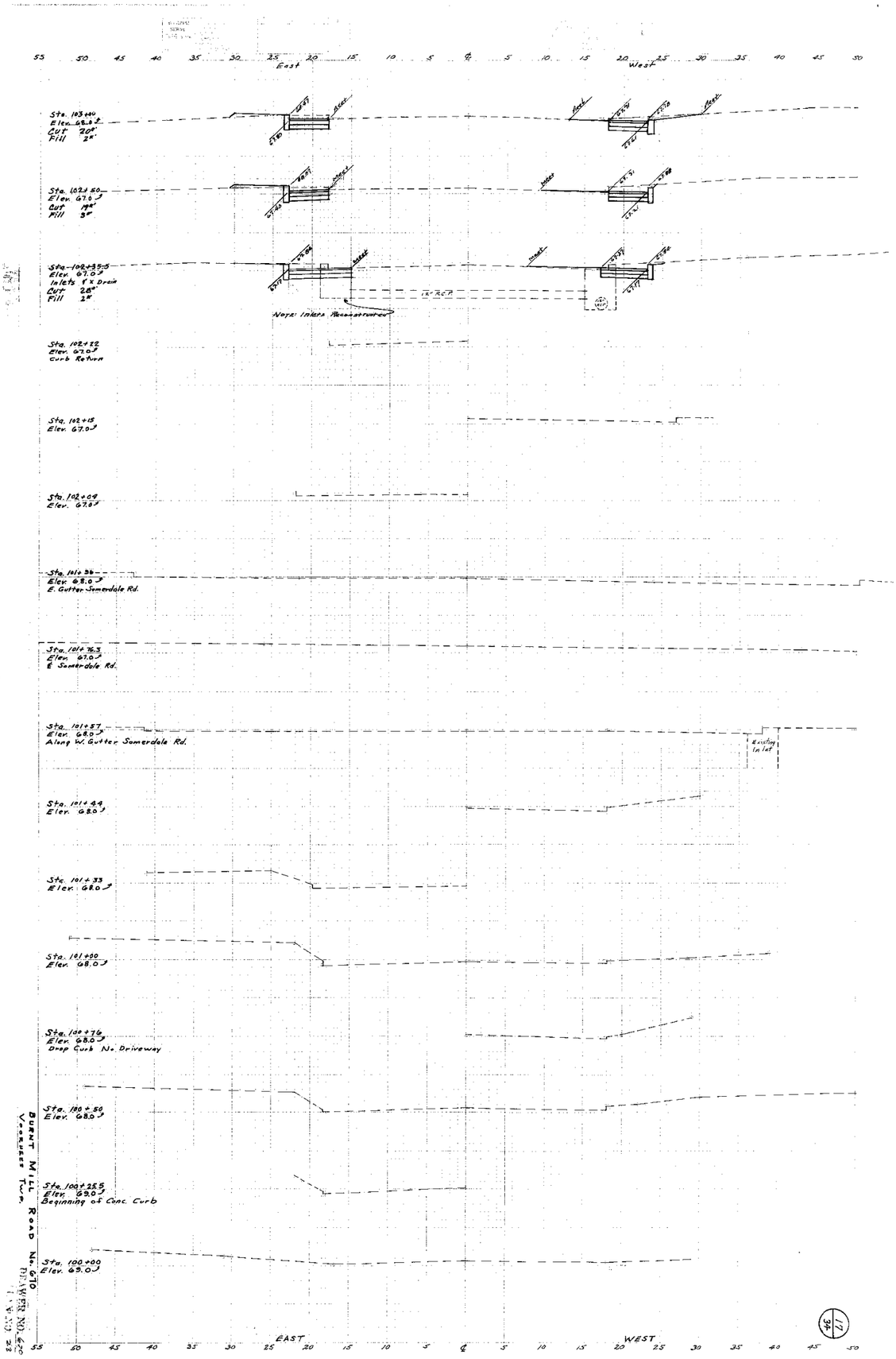


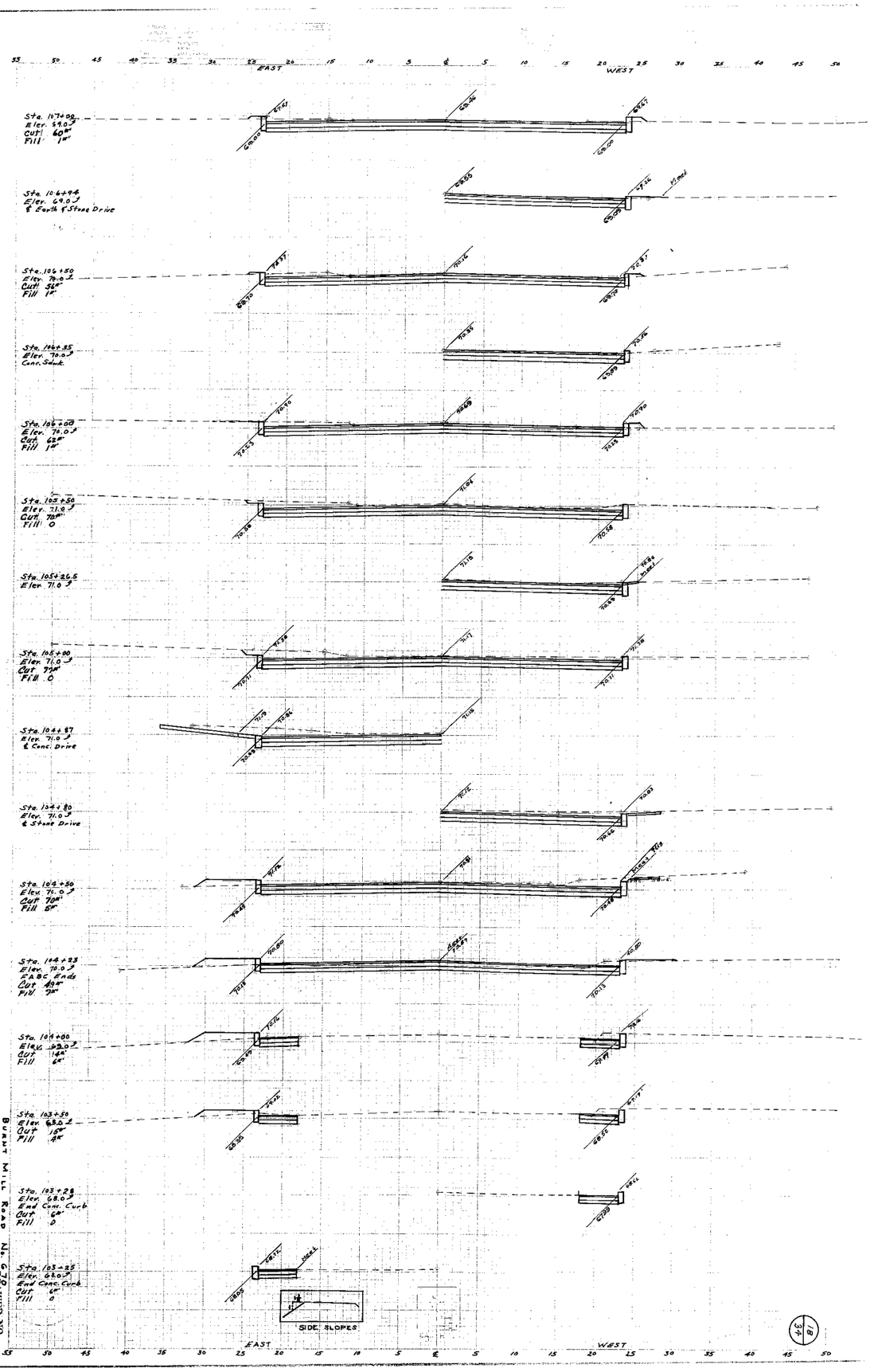
BORING LOCATION PLAN

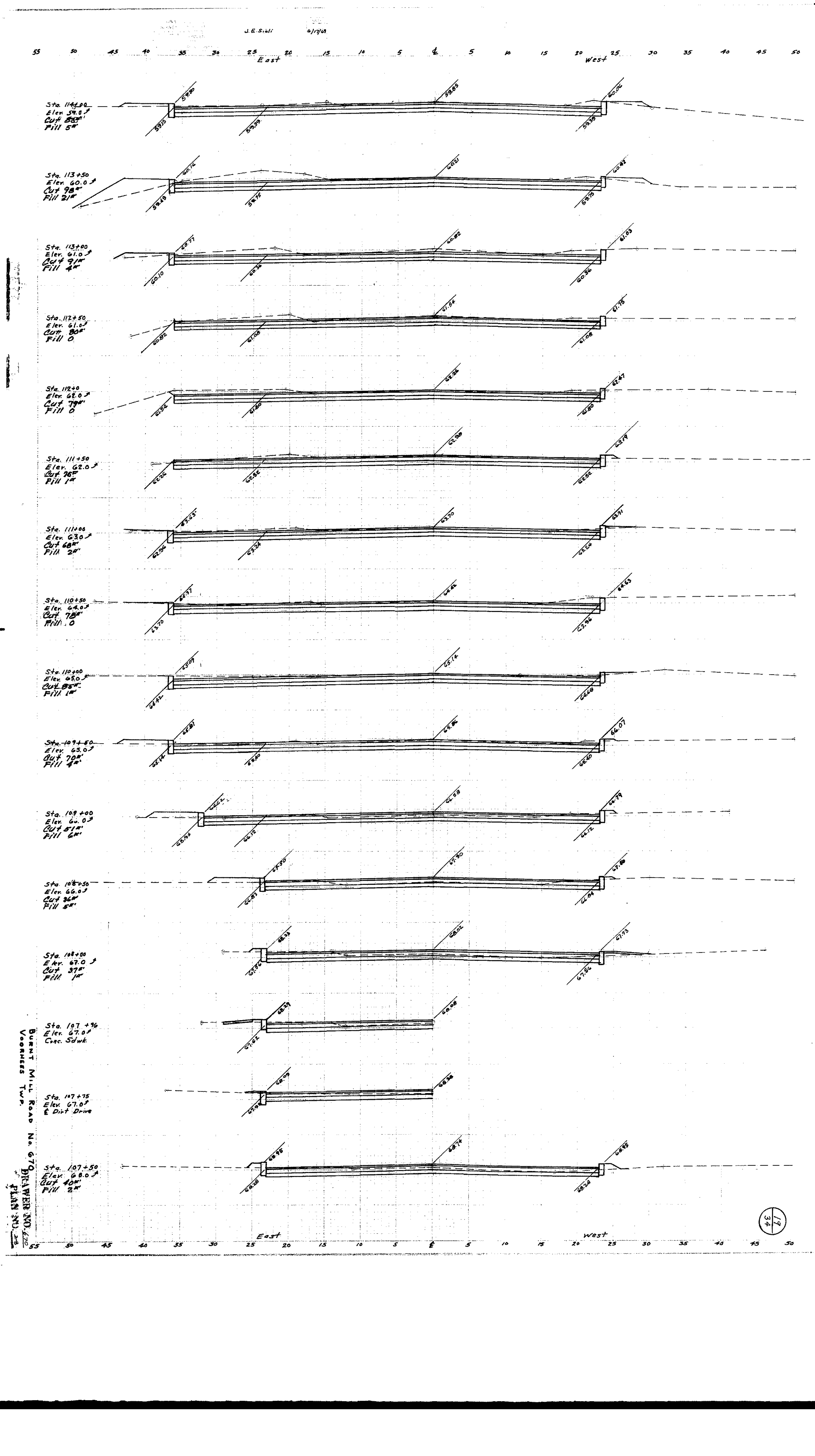
Scale: 1"=1000'

BURNT MILL ROAD - ("670)
VOORHEES TOWNSHIP

DRAWER NO. 670
PLAN NO. 23


55 50 45 40 35 30 25 20 15 10 5 ℄ 5 10 15 20 25 30 35 40 45 50
East
West
Sta. 103+40
Elev. 68.3 ±
Cut 20"
Fill 2"
Sta. 103+50
Elev. 67.0 ±
Cut 19"
Fill 3"
Sta. 102+85.5
Elev. 67.0 ±
Inlets 5' x 5' Drain
Cut 28"
Fill 2"
Note: Inlets Recessed
Sta. 102+52
Elev. 67.0 ±
Curb Return
Sta. 102+18
Elev. 67.0 ±
Sta. 102+09
Elev. 67.0 ±
Sta. 101+36
Elev. 68.0 ±
E. Gutter Somerdale Rd.
Sta. 101+23
Elev. 67.0 ±
E. Somerdale Rd.
Sta. 101+07
Elev. 68.0 ±
Alley W. Gutter Somerdale Rd.
Existing Inlet
Sta. 101+99
Elev. 68.0 ±
Sta. 101+33
Elev. 68.0 ±
Sta. 101+90
Elev. 68.0 ±
Sta. 100+76
Elev. 68.0 ±
Drop Curb No. Driveway
Sta. 100+58
Elev. 68.0 ±
Sta. 100+25.5
Elev. 69.0 ±
Beginning of Conc. Curb
Sta. 100+00
Elev. 69.0 ±
BURNT MILL ROAD No. 610
VOORHEES Twp.
CAMDEN COUNTY, N.J.
55 50 45 40 35 30 25 20 15 10 5 ℄ 5 10 15 20 25 30 35 40 45 50
EAST
WEST
36
11


55 50 45 40 35 30 25 20 15 10 5 ℄ 5 10 15 20 25 30 35 40 45 50
EAST
WEST
Sta. 107+92
Elev. 69.0 ↗
Cut: 40"
Fill: 1"
Sta. 106+94
Elev. 69.0 ↗
℄ South ℄ Stone Drive
Sta. 106+59
Elev. 70.0 ↗
Cut: 54"
Fill: 1"
Sta. 106+35
Elev. 70.0 ↗
Conc. Slab
Sta. 106+00
Elev. 70.0 ↗
Cut: 62"
Fill: 1"
Sta. 105+50
Elev. 71.0 ↗
Cut: 70"
Fill: 0
Sta. 105+26.5
Elev. 71.0 ↗
Sta. 105+00
Elev. 71.0 ↗
Cut: 75"
Fill: 0
Sta. 104+87
Elev. 71.0 ↗
℄ Conc. Drive
Sta. 104+80
Elev. 71.0 ↗
℄ Stone Drive
Sta. 104+50
Elev. 71.0 ↗
Cut: 70"
Fill: 8"
Sta. 104+23
Elev. 70.0 ↗
FABC Ends
Cut: 48"
Fill: 2"
Sta. 104+00
Elev. 69.0 ↗
Cut: 14"
Fill: 6"
Sta. 103+50
Elev. 68.0 ↗
Cut: 15"
Fill: 4"
Sta. 103+28
Elev. 68.0 ↗
End Conc. Curb
Cut: 6"
Fill: 0
Sta. 103+23
Elev. 68.0 ↗
End Conc. Curb
Cut: 6"
Fill: 0
SIDE SLOPES
1½
1
EAST
WEST
55 50 45 40 35 30 25 20 15 10 5 ℄ 5 10 15 20 25 30 35 40 45 50
BURNT MILL ROAD
No. 6 20 WIDE RD.
WARREN TWP.
WASHINGTON CO.
PLAN AND PROFILE
SHEET NO. 4
SHEETS



J.E.Sisli
East
West
Sta. 114+00 Elev. 59.0 Cut 85" Fill 5"
Sta. 113+50 Elev. 60.0 Cut 98" Fill 21"
Sta. 113+00 Elev. 61.0 Cut 91" Fill 4"
Sta. 112+50 Elev. 61.0 Cut 80" Fill 0
Sta. 112+00 Elev. 62.0 Cut 79" Fill 0
Sta. 111+50 Elev. 62.0 Cut 76" Fill 1"
Sta. 111+00 Elev. 63.0 Cut 68" Fill 2"
Sta. 110+50 Elev. 64.0 Cut 78" Fill 0
Sta. 110+00 Elev. 65.0 Cut 85" Fill 1"
Sta. 109+50 Elev. 65.0 Cut 70" Fill 4"
Sta. 109+00 Elev. 66.0 Cut 51" Fill 6"
Sta. 108+50 Elev. 66.0 Cut 36" Fill 5"
Sta. 108+00 Elev. 67.0 Cut 37" Fill 1"
Sta. 107+96 Elev. 67.0 Conc. Sdwk.
Sta. 107+75 Elev. 67.0 E Dirt Drive
Sta. 107+50 Elev. 68.0 Cut 40" Fill 2"
Burnt Mill Road No. 670
Voorhees Twp.
DRAWER NO. 670
PLAN NO. 23
19/34

20
34

Sta. 118+15
Elev. 60.0
℄ Burnt Mill Road (West)
Cut 6'
Fill

Sta. 118+00
Elev. 61.0
Cut 6'
Fill 2'

Sta. 117+80
Elev. 62.0
Cut 7'
Fill 2'

Sta. 117+60
Elev. 63.0
℄ Drive

Sta. 117+40
Elev. 62.0
Cut 7'
Fill

Sta. 117+20
Elev. 61.0
Cut 6'
Fill

Sta. 117+00
Elev. 60.0
Cut 5'
Fill

Sta. 116+35
Elev. 61.0
E. Gutter Osage Ave.

Sta. 116+15
Elev. 61.0
℄ Osage Ave.

Sta. 116+15
Elev. 61.0
W. Gutter Osage Ave.

Sta. 116+00
Elev. 60.0
Cut 4'
Fill

Sta. 115+75
Elev. 60.0
℄ Drive

Sta. 115+60
Elev. 60.0
Cut 7.5'
Fill 2'

Sta. 115+00
Elev. 59.0
Cut 7'
Fill 2'

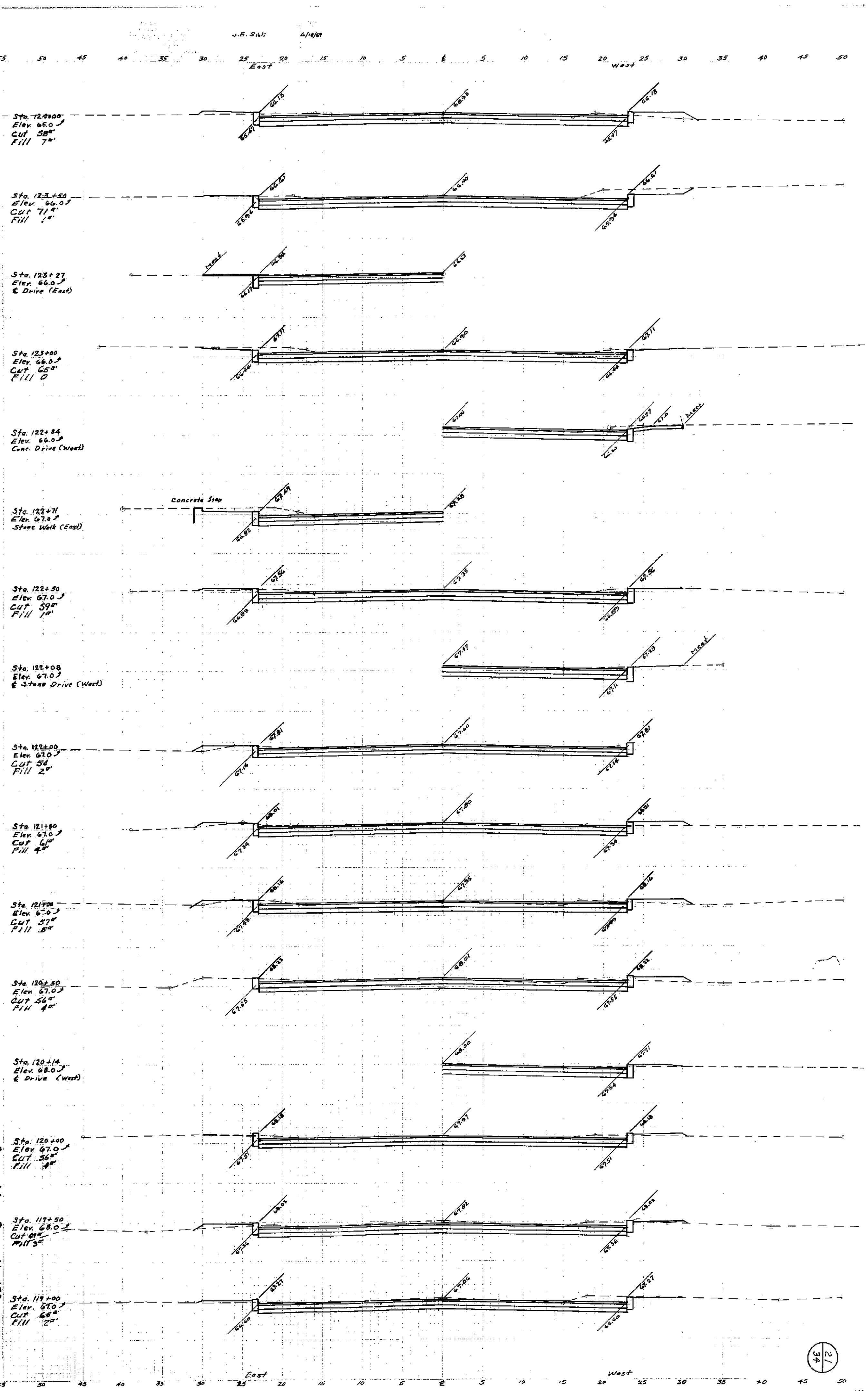
Sta. 114+50
Elev. 59.0
Cut 7'
Fill 3'

Sta. 114+47
Elev. 59.0

Sta. 114+30
Elev. 58.0

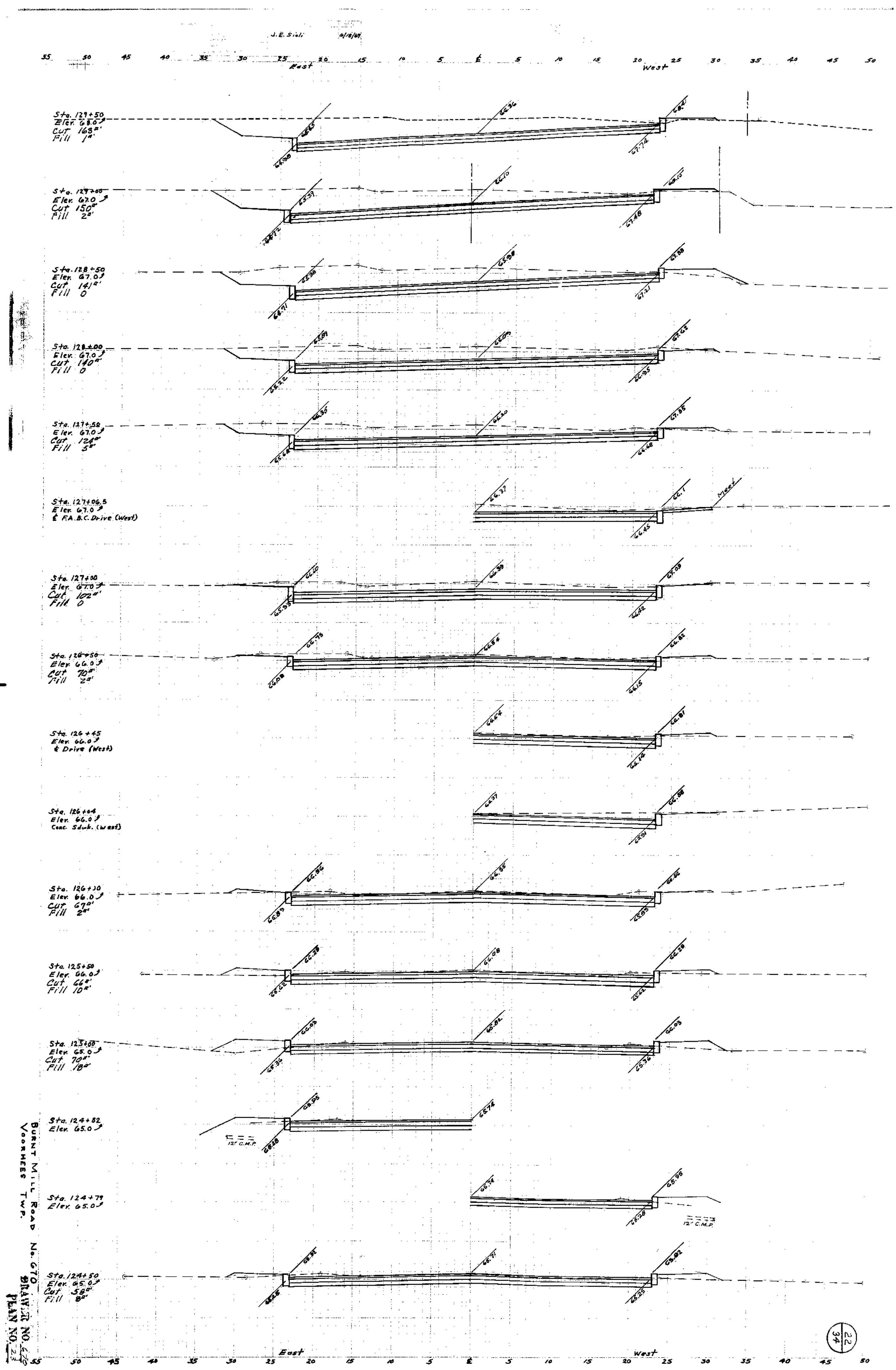
BURNT MILL ROAD No. 670
VOORHEES TWP.

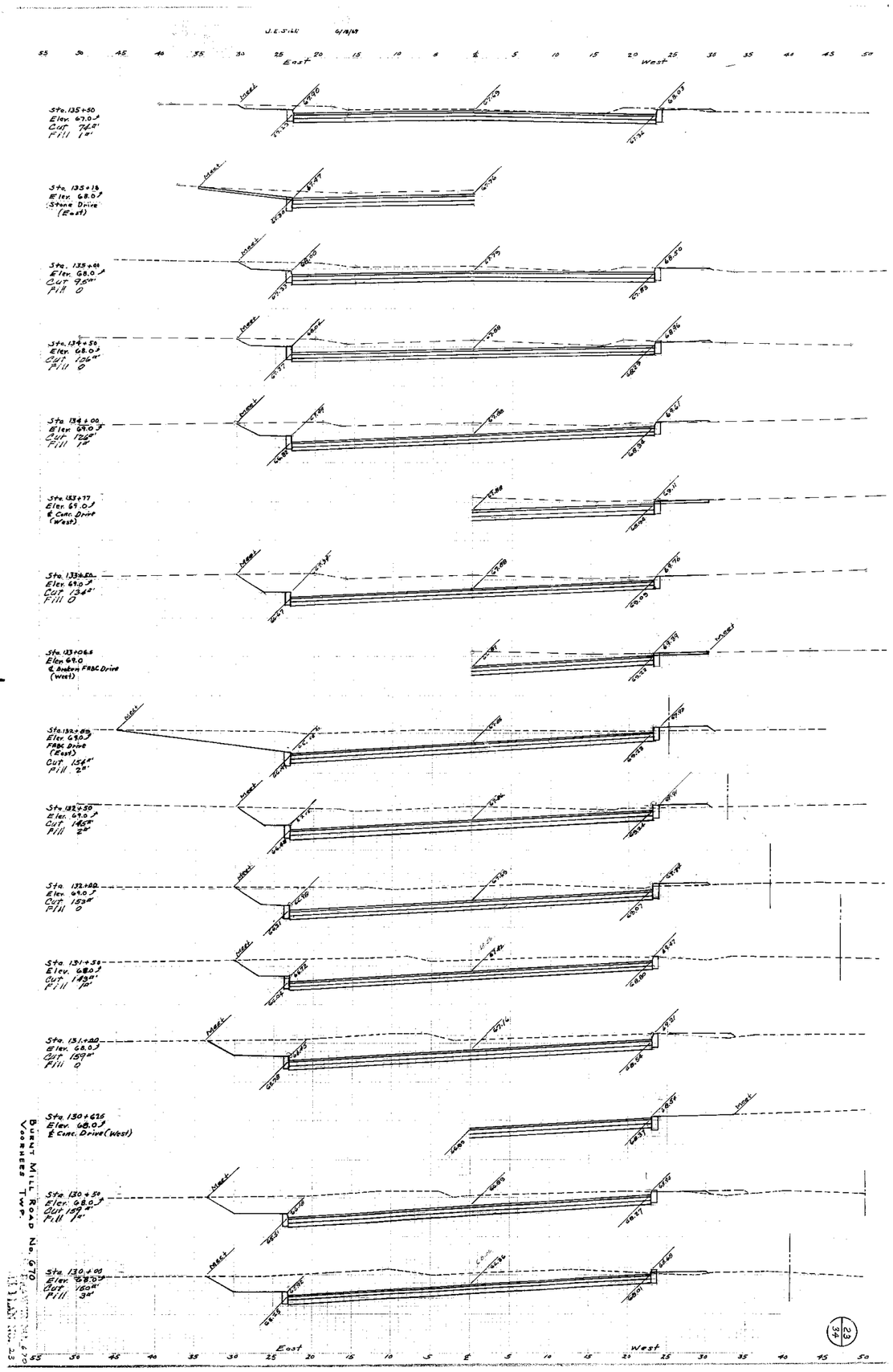
DRAWING NO. 6-28
PLAN NO. 728

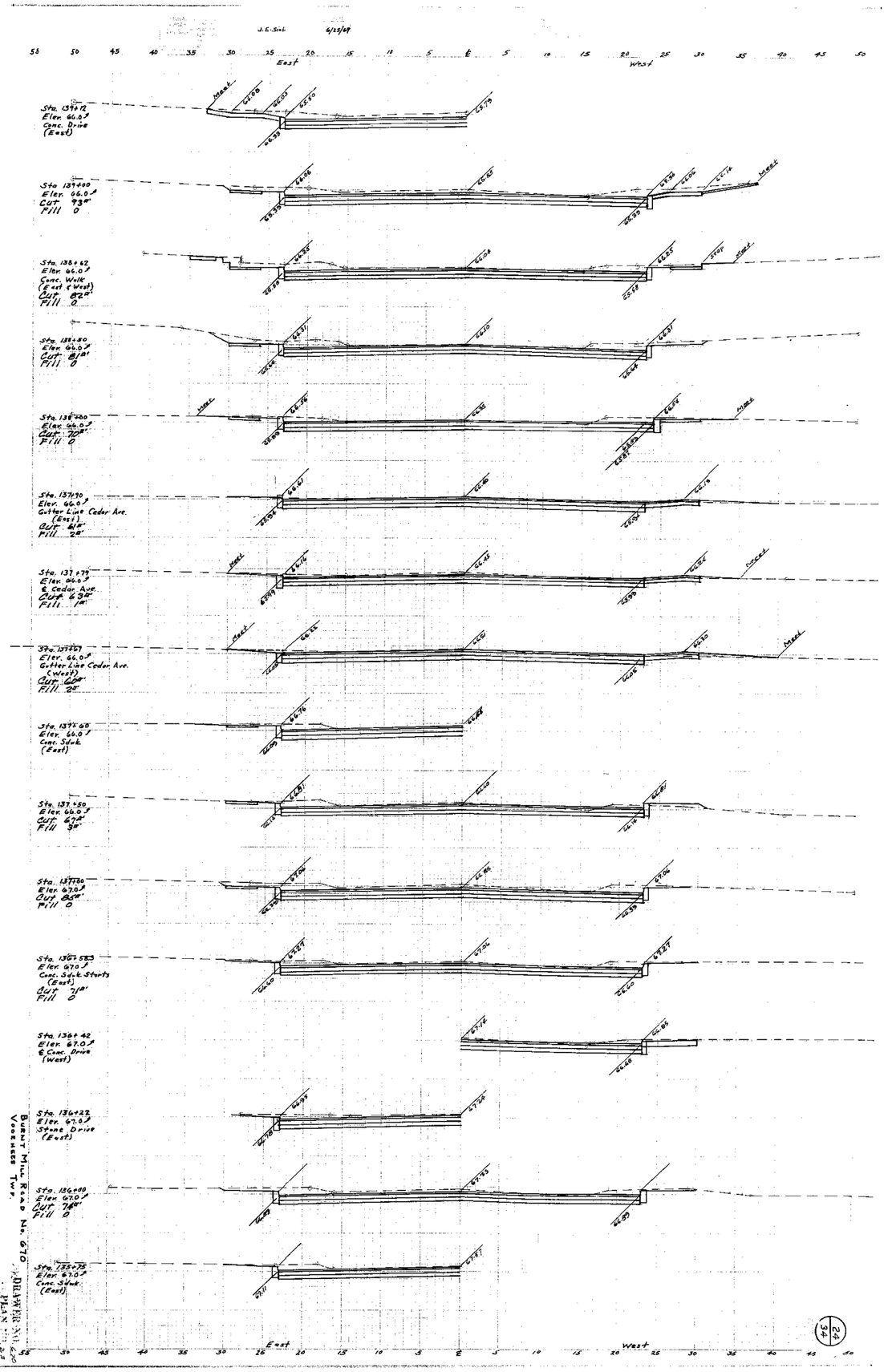


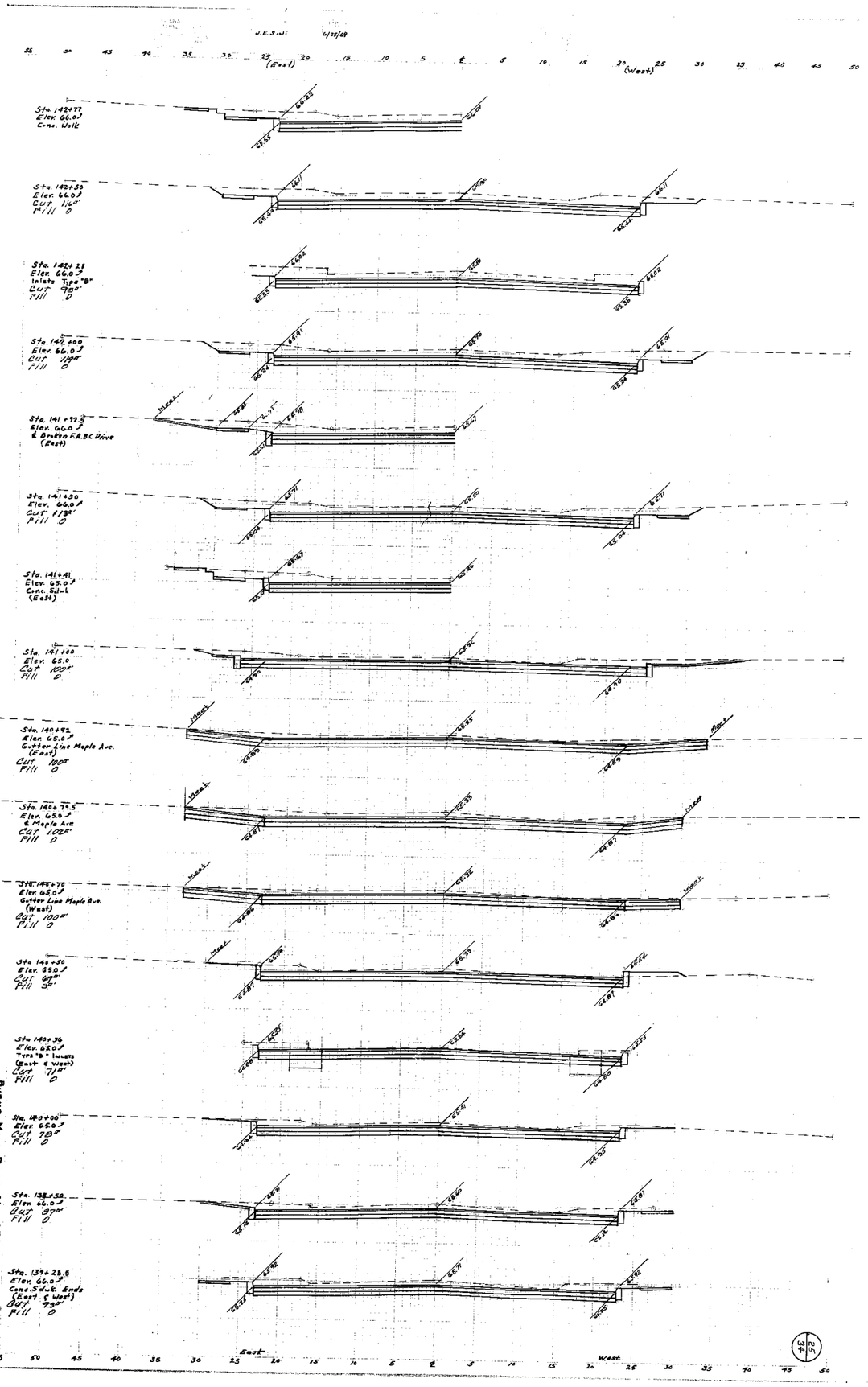
Burnt Mill Road No. 670
Voorhees Twp.

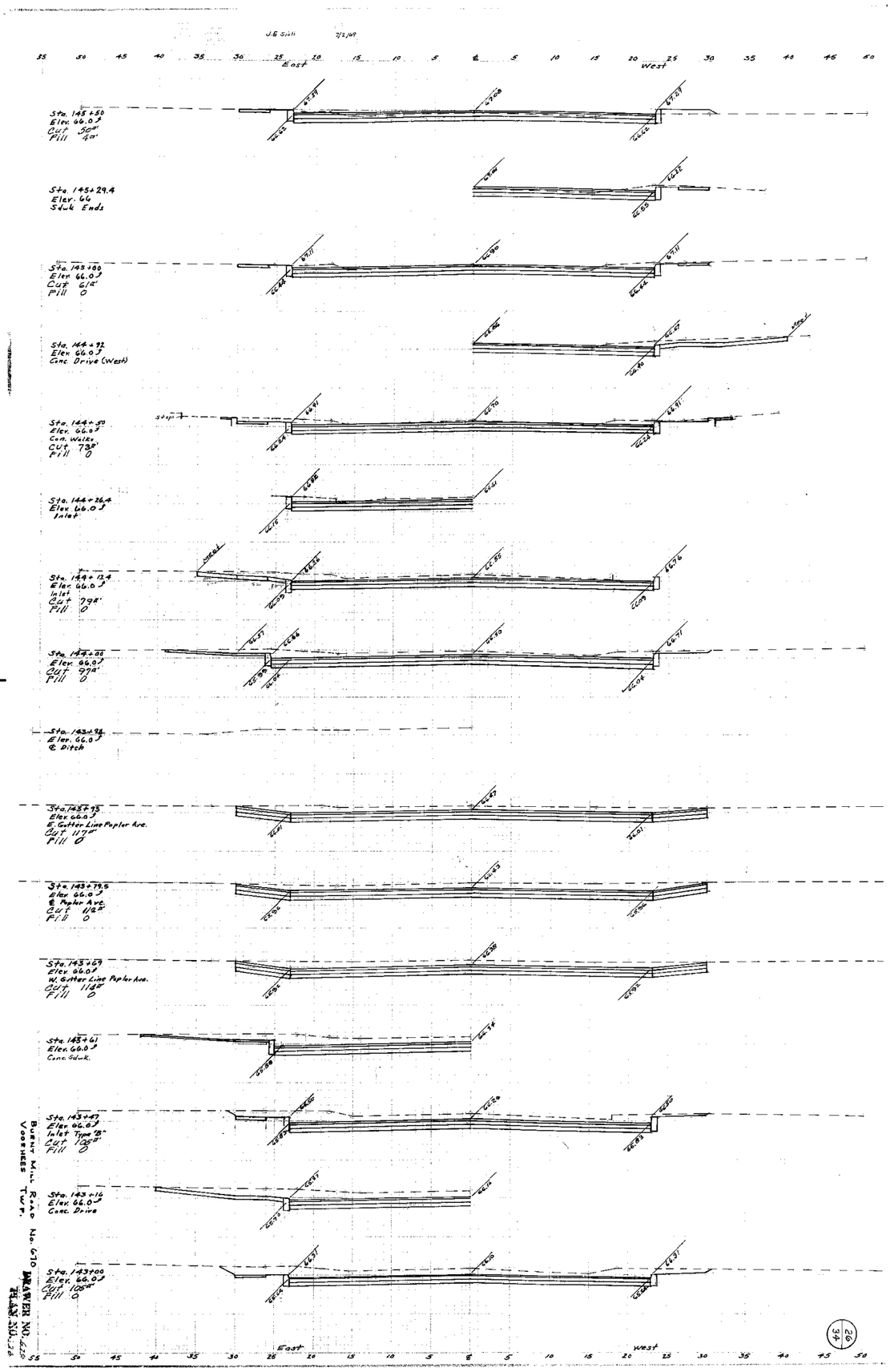
Drawer No. 670
Plan No. 23

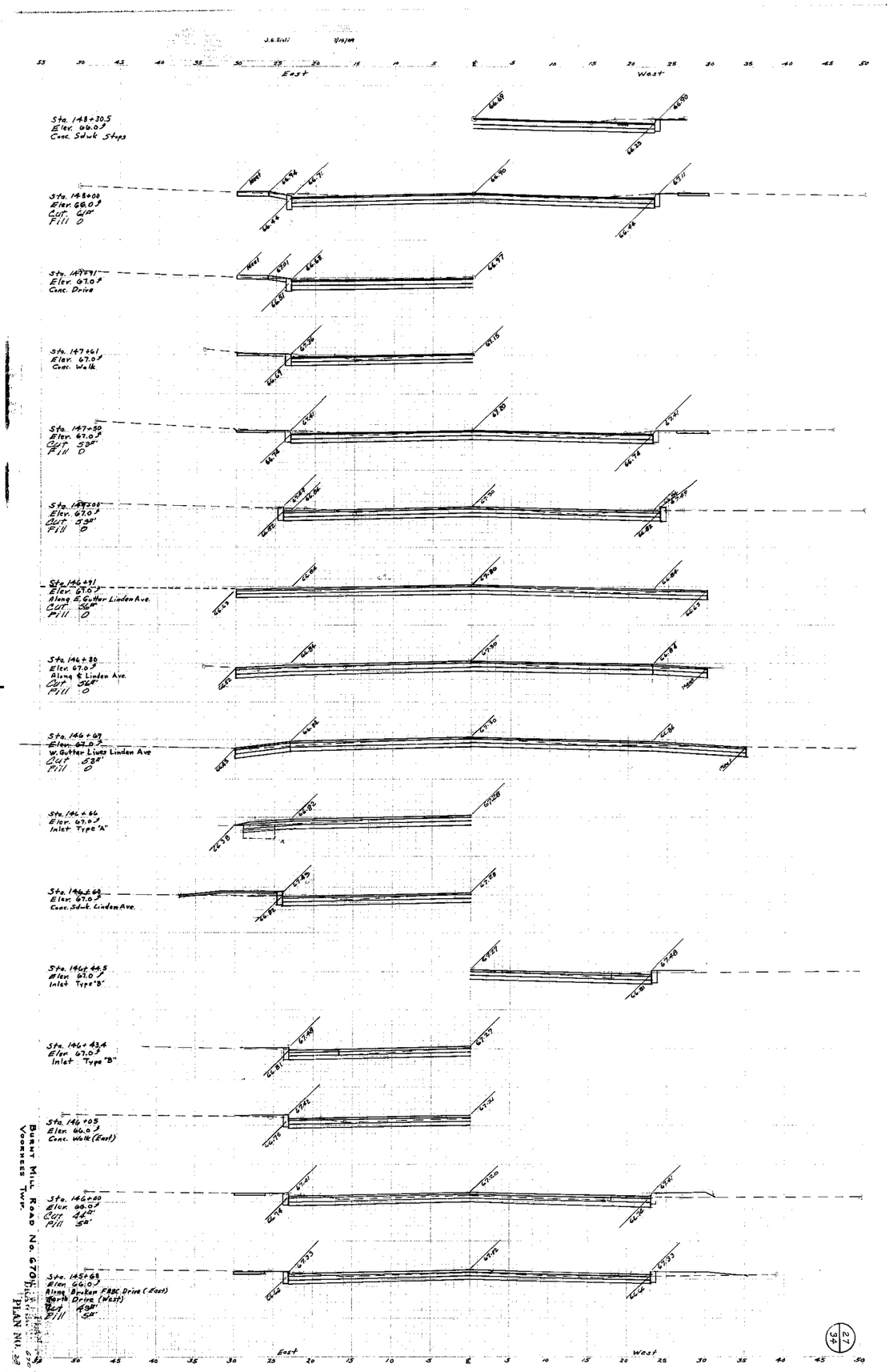

J.E. Sicli 4/10/61
East
West
Sta. 129+50 Elev. 68.0 Cut 163 Fill 1
Sta. 129+00 Elev. 67.0 Cut 150 Fill 2
Sta. 128+50 Elev. 67.0 Cut 141 Fill 0
Sta. 128+00 Elev. 67.0 Cut 140 Fill 0
Sta. 127+50 Elev. 67.0 Cut 124 Fill 5
Sta. 127+06.5 Elev. 67.0 ℄ F.A.B.C. Drive (West)
Sta. 127+00 Elev. 67.0 Cut 102 Fill 0
Sta. 126+50 Elev. 66.0 Cut 70 Fill 2
Sta. 126+45 Elev. 66.0 ℄ Drive (West)
Sta. 126+44 Elev. 66.0 Conc. Sdwk. (West)
Sta. 126+10 Elev. 66.0 Cut 67 Fill 2
Sta. 125+50 Elev. 66.0 Cut 66 Fill 10
Sta. 125+00 Elev. 65.0 Cut 70 Fill 18
Sta. 124+82 Elev. 65.0
12" C.M.P.
Sta. 124+79 Elev. 65.0
12" C.M.P.
Sta. 124+50 Elev. 65.0 Cut 58 Fill 8
22/34
Burnt Mill Road No. 670
Voorhees Twp.
Drawer No. 670
Plan No. 23

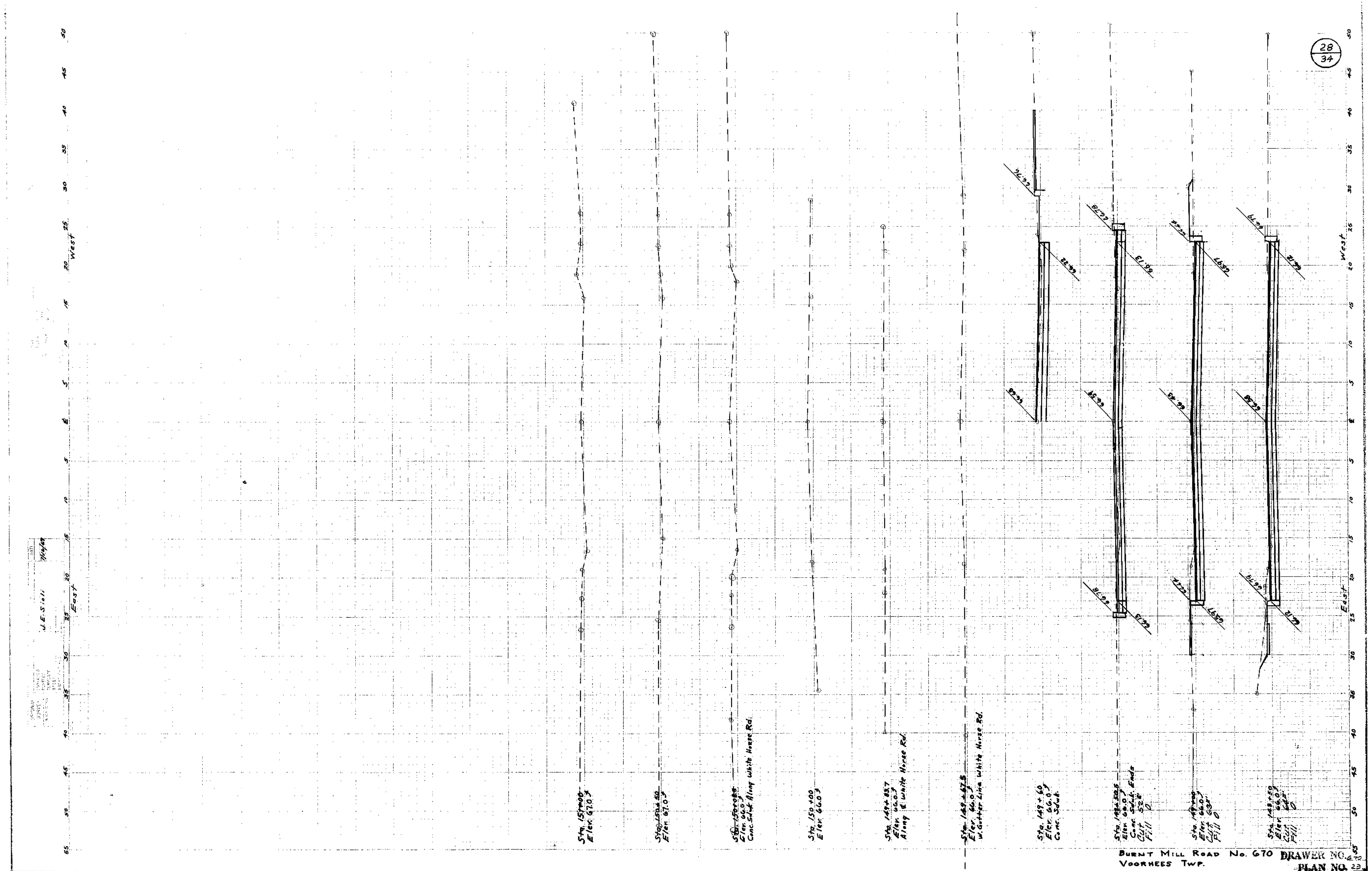

U.E.S.H.C. 6/18/58
East
West
Sta. 135+30
Elev. 67.0
Cut 74.2'
Fill 1.0'
Sta. 135+16
Elev. 68.0
Stone Drive
(East)
Sta. 135+01
Elev. 68.0
Cut 9.5'
Fill 0
Sta. 134+56
Elev. 68.0
Cut 10.6'
Fill 0
Sta. 134+00
Elev. 69.0
Cut 12.2'
Fill 1.7'
Sta. 133+77
Elev. 69.0
E. Conc. Drive
(West)
Sta. 133+54
Elev. 69.0
Cut 13.4'
Fill 0
Sta. 133+06.5
Elev. 69.0
E. Bethel P.R.R. Drive
(West)
Sta. 132+89
Elev. 69.0
P.R.R. Drive
(East)
Cut 15.4'
Fill 2.0'
Sta. 132+50
Elev. 69.0
Cut 14.5'
Fill 2.0'
Sta. 132+00
Elev. 69.0
Cut 12.5'
Fill 0
Sta. 131+56
Elev. 68.0
Cut 14.2'
Fill 1.0'
Sta. 131+00
Elev. 68.0
Cut 15.9'
Fill 0
Sta. 130+67.5
Elev. 68.0
E. Conc. Drive (West)
Sta. 130+39
Elev. 68.0
Cut 13.9'
Fill 1.0'
Sta. 130+00
Elev. 68.0
Cut 16.0'
Fill 3.0'
East
West
BURNT MILL ROAD No. 670
VOORHEES Twp.


J.E.Sink 6/23/67
East
West
Sta. 139+12
Elev. 66.0'
Conc. Drive (East)
Sta 139+00
Elev. 66.0'
Cut: 93'
Fill 0
Sta. 138+62
Elev. 66.0'
Conc. Walk (East & West)
Cut: 82'
Fill 0
Sta. 138+20
Elev. 66.0'
Cut: 81'
Fill 0
Sta. 137+90
Elev. 66.0'
Cut: 70'
Fill 0
Sta. 137+70
Elev. 66.0'
Gutter Line Cedar Ave. (East)
Cut: 41'
Fill 2'
Sta. 137+75
Elev. 66.0'
E. Cedar Ave.
Cut: 63'
Fill 1'
Sta. 137+67
Elev. 66.0'
Gutter Line Cedar Ave. (West)
Cut: Level
Fill 2'
Sta. 137+60
Elev. 66.0'
Conc. Stk. (East)
Sta. 137+50
Elev. 66.0'
Cut: 67'
Fill 3'
Sta. 137+30
Elev. 67.0'
Cut: 80'
Fill 0
Sta. 137+23
Elev. 67.0'
Conc. Stk. Starts (East)
Cut: 71'
Fill 0
Sta. 136+42
Elev. 67.0'
E. Conc. Drive (West)
Sta. 136+23
Elev. 67.0'
Stone Drive (East)
Sta. 136+00
Elev. 67.0'
Cut: 76'
Fill 0
Sta. 135+75
Elev. 67.0'
Conc. Stk. (East)
Burnt Mill Road No. 670
Voorhees Twp.
PLAN
PROFILE
24
34


J.E.S. 4/25/69
55 50 45 40 35 30 25 20 15 10 5 E 5 10 15 20 (West) 25 30 35 40 45 50
(East)
Sta. 142+77
Elev. 66.0'
Conc. Walk
Sta. 142+50
Elev. 66.0'
Cut 15"
Fill 0
Sta. 142+23
Elev. 66.0'
Inlets Type "B"
Cut 90"
Fill 0
Sta. 142+00
Elev. 66.0'
Cut 119"
Fill 0
Sta. 141+99.5
Elev. 66.0'
E. Dayton R.R.C. Drive
(East)
Sta. 141+50
Elev. 66.0'
Cut 113"
Fill 0
Sta. 141+41
Elev. 65.0'
Conc. Stuck
(East)
Sta. 141+00
Elev. 65.0'
Cut 105"
Fill 0
Sta. 140+93
Elev. 65.0'
Gutter Line Maple Ave.
(East)
Cut 100"
Fill 0
Sta. 140+79.5
Elev. 65.0'
& Maple Ave
Cut 102"
Fill 0
Sta. 140+79
Elev. 65.0'
Gutter Line Maple Ave.
(West)
Cut 100"
Fill 0
Sta. 140+50
Elev. 65.0'
Cut 94"
Fill 36"
Sta. 140+36
Elev. 65.0'
Type "B" Inlets
(East & West)
Cut 71"
Fill 0
Sta. 140+00
Elev. 65.0'
Cut 78"
Fill 0
Sta. 139+50
Elev. 66.0'
Cut 87"
Fill 0
Sta. 139+28.5
Elev. 66.0'
Conc. S.W.L. Ends
(East & West)
Cut 92"
Fill 0
BURNT MILL ROAD N. 670
VOORHEES TWP.
55 50 45 40 35 30 25 20 15 10 5 E 5 10 15 20 25 30 35 40 45 50
East
West
40
72


J.E. Sisk 7/2/48
East
West
Sta. 145+50
Elev. 66.0 ±
Cut 50"
Fill 40"
Sta. 145+29.4
Elev. 66
Stub Ends
Sta. 145+80
Elev. 66.0 ±
Cut 61"
Fill 0
Sta. 144+92
Elev. 66.0 ±
Conc. Drive (West)
Sta. 144+50
Elev. 66.0 ±
Con. Walks
Cut 73"
Fill 0
Sta. 144+26.4
Elev. 66.0 ±
Inlet
Sta. 144+13.4
Elev. 66.0 ±
Inlet
Cut 79"
Fill 0
Sta. 144+00
Elev. 66.0 ±
Cut 97"
Fill 0
Sta. 143+96
Elev. 66.0 ±
℄ Ditch
Sta. 143+95
Elev. 66.0 ±
E. Gutter Line Poplar Ave.
Cut 117"
Fill 0
Sta. 143+79.5
Elev. 66.0 ±
℄ Poplar Ave.
Cut 112"
Fill 0
Sta. 143+69
Elev. 66.0 ±
W. Gutter Line Poplar Ave.
Cut 112"
Fill 0
Sta. 143+61
Elev. 66.0 ±
Conc. Walk.
Sta. 143+47
Elev. 66.0 ±
Inlet Type "B"
Cut 132"
Fill 0
Sta. 143+16
Elev. 66.0 ±
Conc. Drive
Sta. 143+00
Elev. 66.0 ±
Cut 100"
Fill 0
East
West
BURNT MILL ROAD
VOORHEES TWP.
DRAWER NO. 620
PLAN NO. 620
46
28


J.S. Bell 9/15/94
East
West
Sta. 148+30.5
Elev. 66.0'
Conc. Sdwk. Steps
Sta. 148+00
Elev. 66.0'
Cut .42'
Fill 0
Sta. 147+81
Elev. 67.0'
Conc. Drive
Sta. 147+61
Elev. 67.0'
Conc. Walk
Sta. 147+50
Elev. 67.0'
Cut .09'
Fill 0
Sta. 147+25
Elev. 67.0'
Cut .33'
Fill 0
Sta. 146+91
Elev. 67.0'
Along E. Gutter Linden Ave.
Cut .52'
Fill 0
Sta. 146+80
Elev. 67.0'
Along E. Linden Ave.
Cut .52'
Fill 0
Sta. 146+69
Elev. 67.0'
W. Gutter Lines Linden Ave
Cut .53'
Fill 0
Sta. 146+66
Elev. 67.0'
Inlet Type "A"
Sta. 146+62
Elev. 67.0'
Conc. Sdwk. Linden Ave.
Sta. 146+44.5
Elev. 67.0'
Inlet Type "B"
Sta. 146+43.4
Elev. 67.0'
Inlet Type "B"
Sta. 146+05
Elev. 66.0'
Conc. Walk (East)
Sta. 146+00
Elev. 66.0'
Cut .44'
Fill .54'
Sta. 145+65
Elev. 66.0'
Along Broken FBK Drive (East)
North Drive (West)
Cut .49'
Fill .54'
BURNT MILL ROAD No. 670
VOORHEES TWP.
PLAN NO. 23
27
35


J.E. Sioli
7/16/69
East
West
Sta. 151+00
Elev. 67.0±
Sta. 150+50
Elev. 67.0±
Sta. 150+08.5
Elev. 66.0±
Conc. Sdwk. Along White Horse Rd.
Sta. 150+00
Elev. 66.0±
Sta. 149+83.7
Elev. 66.0±
Along ℄ White Horse Rd.
Sta. 149+67.5
Elev. 66.0±
W. Gutter Line White Horse Rd.
Sta. 149+60
Elev. 66.0±
Conc. Sdwk.
Sta. 149+50.5
Elev. 66.0±
Conc. Sdwk. Ends
Cut 52±
Fill 0
Sta. 149+00
Elev. 66.0±
Cut 63±
Fill 0
Sta. 148+50
Elev. 66.0±
Cut 64±
Fill 0
66.76
66.22
66.68
66.78
66.13
66.59
66.42
66.97
66.43
66.79
66.12
66.58
28/34
BURNT MILL ROAD No. 670
VOORHEES TWP.
DRAWER NO. 670
PLAN NO. 23

STATION	DIST	CUT AREA	CUT VOLUME	FILL AREA	FILL VOLUME	PLAN
103+50	100	38	3800	0	0	
103+00	50	30	1700	0	0	
102+50	50	17	1175	0	0	
102+00	50	13	750	0	0	
101+50	50	12	625	0	0	
101+00	50	11	575	0	0	
100+50	50	10	525	0	0	
100+00	50	10	500	0	0	
99+50	50	10	500	0	0	
99+00	50	10	500	0	0	
98+50	50	10	500	0	0	
98+00	50	10	500	0	0	
97+50	50	10	500	0	0	
97+00	50	10	500	0	0	
96+50	50	10	500	0	0	
96+00	50	10	500	0	0	
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0+00	50	10	500	0	0	

EARTH EXCAVATION	14,175 C.Y.
FILL	
+15% FOR COMPACTION	2,126 C.Y.
EXCESS EXCAVATION	16,301 C.Y.

Cut: 44,590 Cu.Ft. = 1,650 C.Y.
Fill: 500 Cu.Ft. = 18 C.Y.

Cut: 59,400 Cu.Ft. = 2,200 C.Y.
Fill: 550 Cu.Ft. = 20 C.Y.

Cut: 26,865 Cu.Ft. = 995 C.Y.
Fill: 4,650 Cu.Ft. = 172 C.Y.

Cut: 63,180 Cu.Ft. = 2,340 C.Y.
Fill: 560 Cu.Ft. = 21 C.Y.

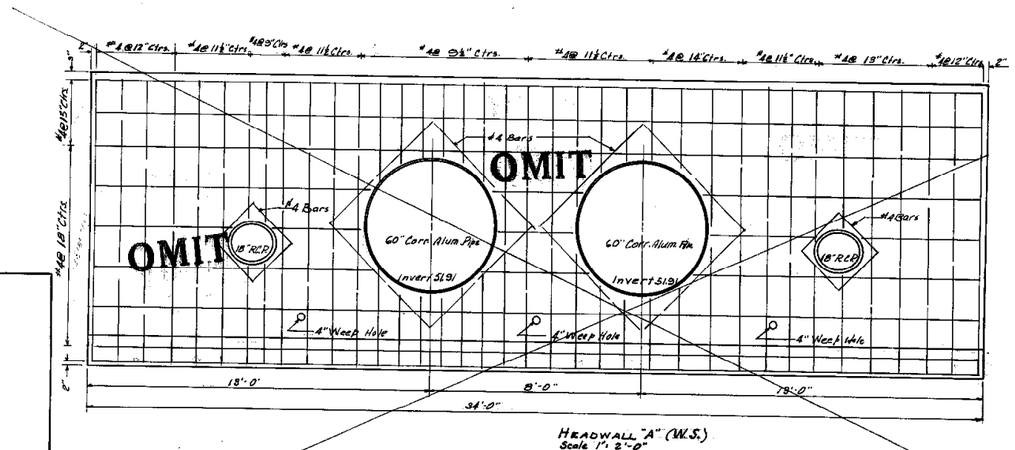
Cut: 60,900 Cu.Ft. = 2,255 C.Y.
Fill: 2,700 Cu.Ft. = 100 C.Y.

Cut: 16,470 Cu.Ft. = 610 C.Y.
Fill: 1,445 Cu.Ft. = 54 C.Y.

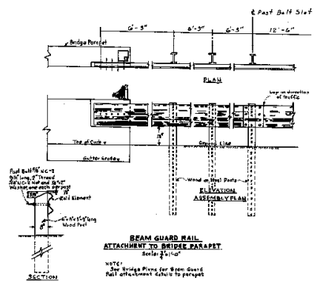
Cut: 15,390 Cu.Ft. = 570 C.Y.
Fill: 928 Cu.Ft. = 34 C.Y.

BURNT MILL ROAD No. 670
VOORHEES TWP.

DRAWING NO. 672
PLAN NO. 33

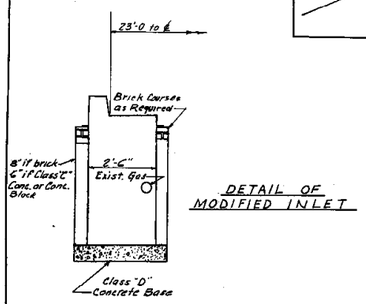


HEADWALL "A" (W.S.)
Scale 1": 2'-0"



BEAM GUARD RAIL
ATTACHMENT TO BRIDGE PARAPET
Scale: 3"=1'-0"

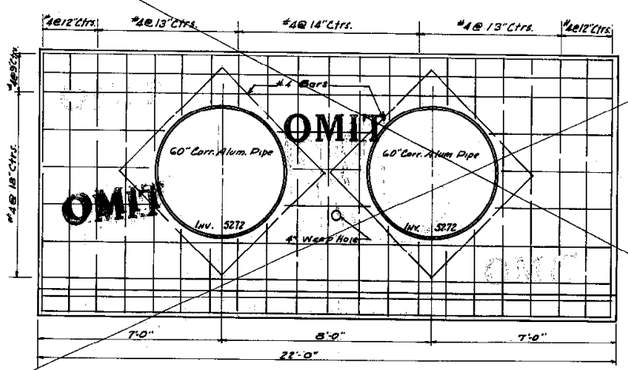
NOTE:
See Bridge Plans for Beam Guard Rail attachment details to parapet



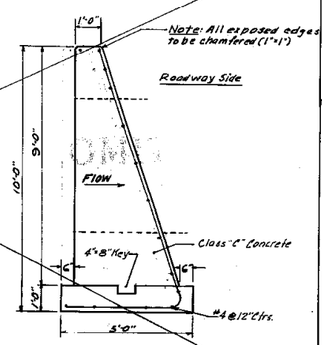
ELEVATION
Scale: 1" = 2'-0"

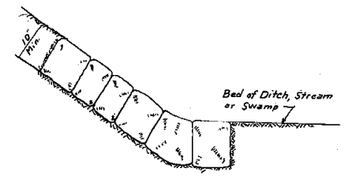
DETAIL OF MODIFIED INLET

RECONSTRUCT INLET DETAIL 1

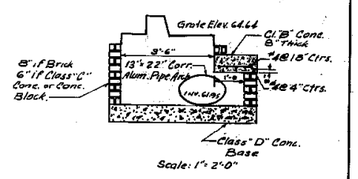


HEADWALL "B" (E.S.)
Scale: 1" = 2'-0"





RIP RAP SLOPE PROTECTION
No Scale

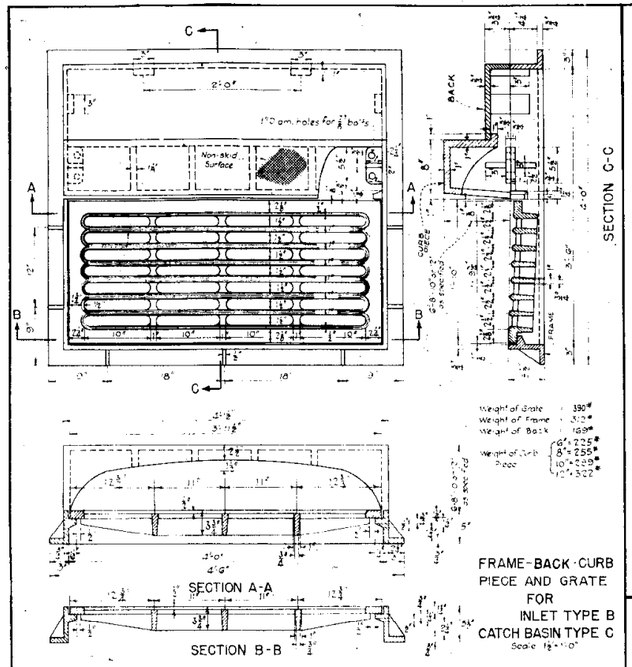


Scale: 1" = 2'-0"

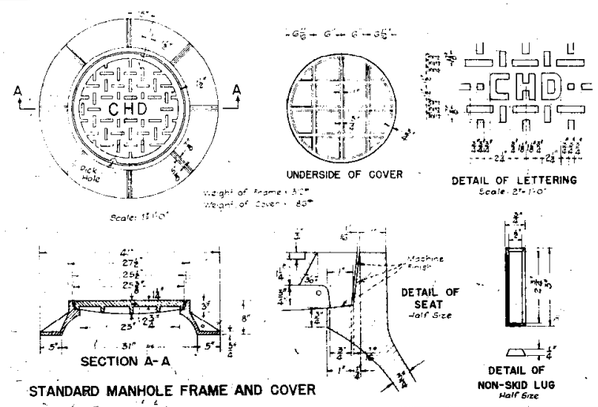
CONSTRUCT INLET TYPE "B"
DETAIL 2

DRAWER NO. 620
PLAN NO. 23

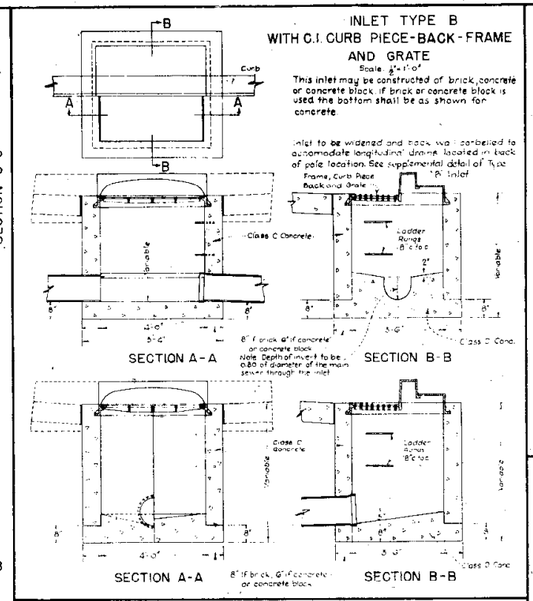
BURNT MILL ROAD 670
VOORHEES TWP.



FRAME-BACK-CURB PIECE AND GRATE FOR INLET TYPE B CATCH BASIN TYPE C
Scale 1½"=1'0"



STANDARD MANHOLE FRAME AND COVER

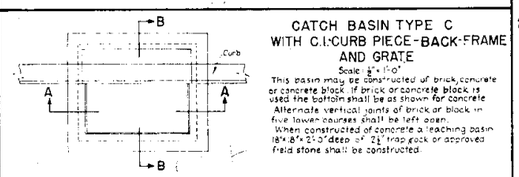


INLET TYPE B
WITH C.I. CURB PIECE-BACK-FRAME AND GRATE
Scale ½"=1'0"

This inlet may be constructed of brick, concrete or concrete block. If brick or concrete block is used the bottom shall be as shown for concrete.

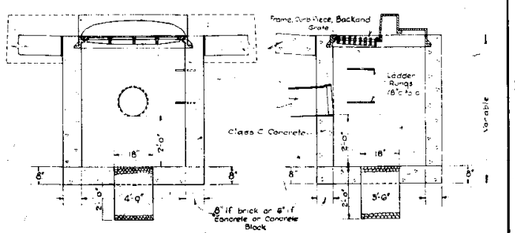
Inlet to be widened and back walls corbeled to accomodate longitudinal drains located in back of gate location. See supplemental detail of Type "B" Inlet

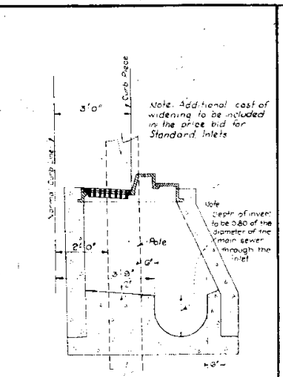
Frame, Curb Piece Backing Grate
8" if brick, 6" if concrete or concrete block
Note: Depth of invert to be 0.80 of diameter of the main sewer through the inlet



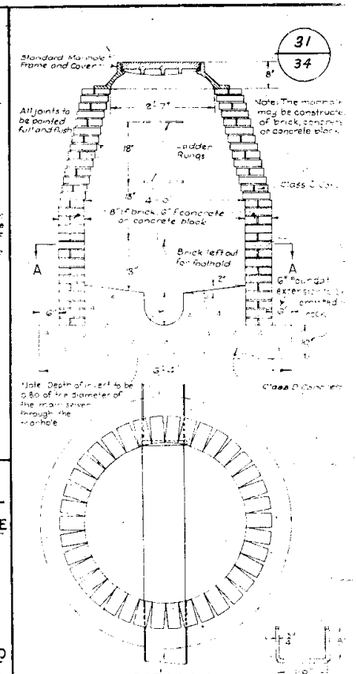
CATCH BASIN TYPE C
WITH C.I. CURB PIECE-BACK-FRAME AND GRATE
Scale ½"=1'0"

This basin may be constructed of brick, concrete or concrete block. If brick or concrete block is used the bottom shall be as shown for concrete.
Alternate vertical joints of brick or block in five lower courses shall be left open.
When constructed of concrete a leaching basin 18"x 8"x 2'-3" deep of 2½" trap rock or approved field stone shall be constructed.





SUPPLEMENTAL DETAIL OF TYPE B INLET WIDENED TO ACCOMODATE STORM SEWER
Scale ½"=1'0"



STANDARD MANHOLE
Scale ½"=1'0"

31
34

GENERAL NOTES

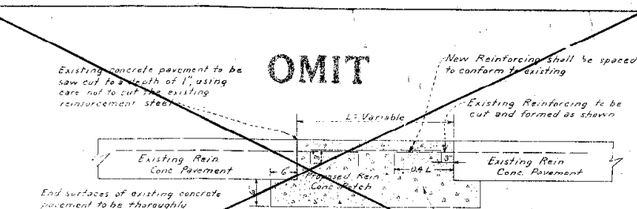
1. WHEN CURB PIECE HEIGHT SPECIFIED IS GREATER THAN CURB FACE HEIGHT, DEPRESS THE GRATE SO THAT TOP OF CURB PIECE IS AT THE SAME ELEVATION AS THE TOP OF CURB.
2. WHEN THE ITEM OF MANHOLES, INLETS AND CATCH BASINS, ADDITIONAL DEPTH IS SCHEDULED IN THE PROPOSAL, WALLS BELOW THE DEPTH OF 8FT., MEASURED FROM TOP OF MANHOLE FRAME OR INLET GUTTER TO INVERT, SHALL BE 12 INCHES THICK, AND EXCEPT IN ROCK, THE OVERALL HORIZONTAL DIMENSIONS OF FOUNDATIONS SHALL BE INCREASED 12 INCHES AND THE DEPTH SHALL BE INCREASED TO 12 INCHES.
3. TOP 12 INCHES OF ALL MANHOLES AND INLETS SHALL BE CONSTRUCTED OF BRICK REGARDLESS OF THE MASONRY MATERIAL USED IN CONSTRUCTION.

No.	Description	Date
1	Rev. Standard List	Nov. 3 1943
2	Rev. Block Pattern	Dec. 1 1943
3	Various Changes	March 17 1944
4	Revised	Dec. 6 1945
5	Revised	May 1 1946
6	Revised	Aug. 30 1945

CAMDEN COUNTY ROAD
FILE NO. 1670
23

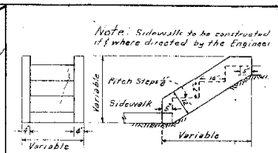
BURNT MILL ROAD #670
VOORHEES TWP.

OMIT



Detail of Reinforced Concrete Patch

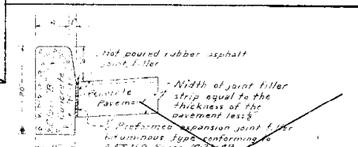
Scale 1" = 1'-0"



Note: Sidewalk to be constructed if where directed by the Engineer

Concrete in Steps and Sidewalks shall be Class C Concrete Dimensions are variable according to conditions at site

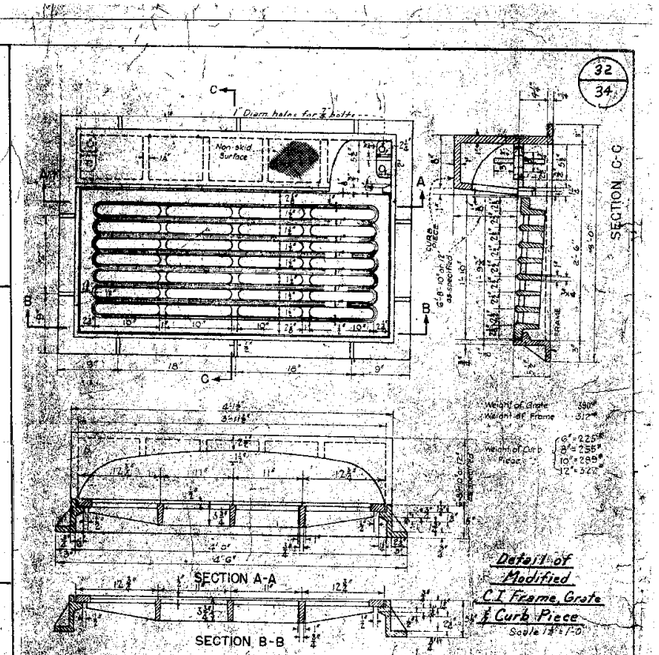
Detail of Concrete Steps



Transverse joints ½" wide shall be installed in the curb 20'-0" apart and shall be filled with preformed bituminous impregnated fiber joint filler, complying with the requirements for Type III filler in AASHO Specs 1" 48, recessed ½" in from front face and top of curb.

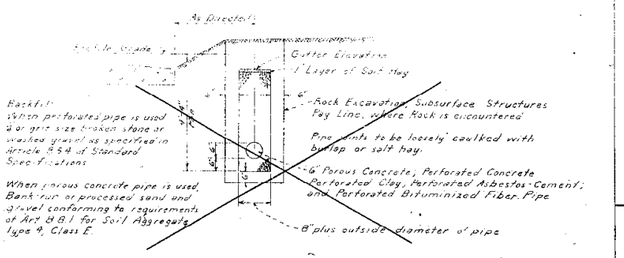
Detail of 9"x20" Concrete Curb

OMIT



Detail of Modified C.I. Frame, Grate & Curb Piece

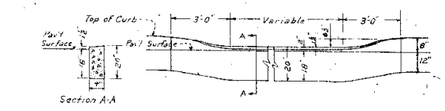
Scale 1" = 1'-0"



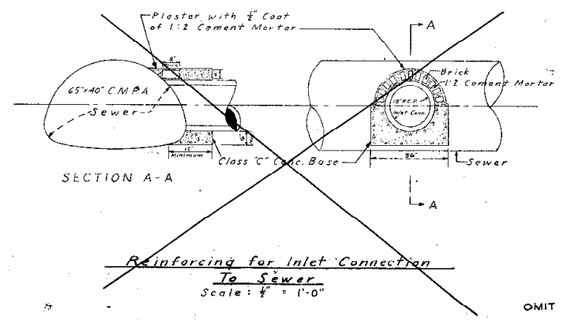
Underdrain Type "F"

Scale ½" = 1'-0"

OMIT



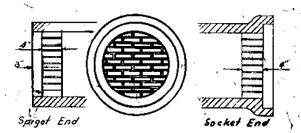
Detail of Depressed Curb at Driveway



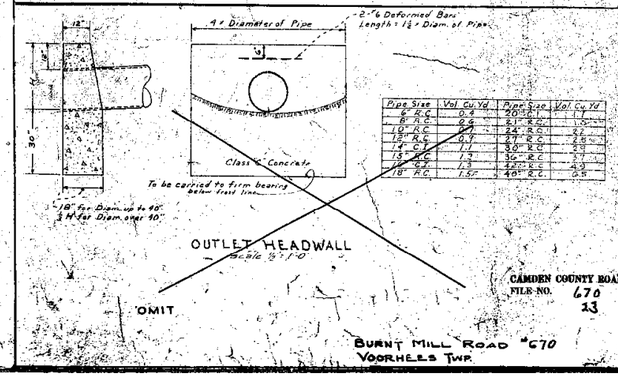
Reinforcing for Inlet Connection To Sewer

Scale: ½" = 1'-0"

OMIT



Detail of Brick Up Pipe

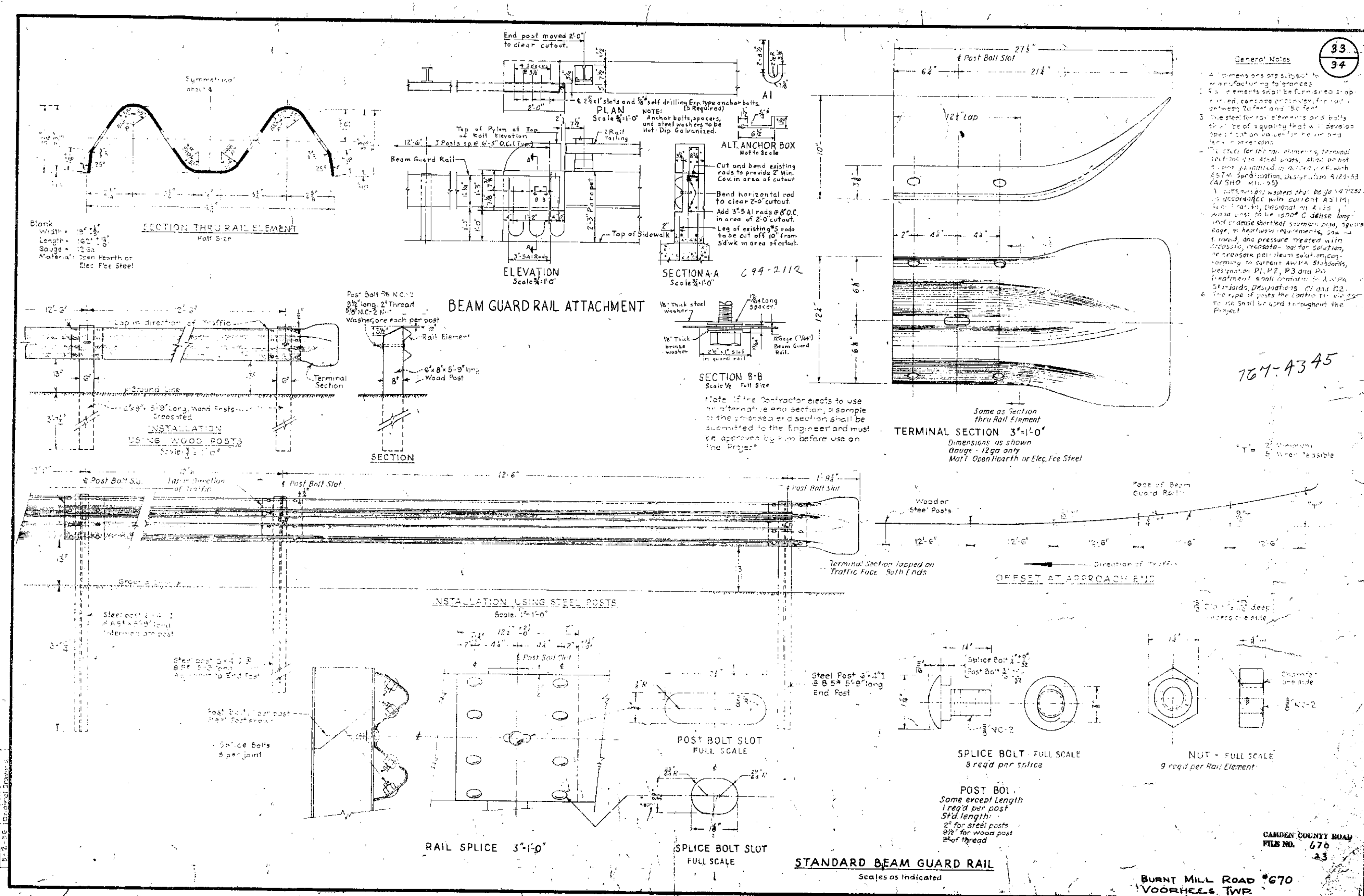


Pipe Size	Vol. Cu. Yd.	Pipe Size	Vol. Cu. Yd.
6" R.C.	0.4	30" R.C.	2.0
8" R.C.	0.6	36" R.C.	2.9
10" R.C.	0.7	24" R.C.	3.2
12" R.C.	0.9	27" R.C.	3.6
4" C.P.	1.1	30" R.C.	4.0
15" R.C.	1.4	36" R.C.	4.9
6" C.P.	1.5	42" R.C.	5.9
18" R.C.	1.6	48" R.C.	6.9

CAMDEN COUNTY ROAD
FILE NO. 670
13

BURNT MILL ROAD #670
VOORHEES TWP.

JES 1956


SECTION THRU RAIL ELEMENT
Half Size
Blank
Material: Open Hearth or Elec. Fce Steel
End post moved 2'-0" to clear cutout.
PLAN
Scale 3/4"=1'-0"
NOTE: Anchor bolts, spacers, and steel washers to be Hot-Dip Galvanized.
A1
ALT. ANCHOR BOX
Not to Scale
Top of Pylon at Top of Rail Elevation
12'-6"
3 Posts sp. @ 6'-3" O.C. (Typ.)
2 Rail Railing
Beam Guard Rail
Parapet
Top of Sidewalk
3"-5 A1 Rods
ELEVATION
Scale 3/4"=1'-0"
Cut and bend existing rods to provide 2" Min. Cov. in area of cutout
Bend horizontal rod to clear 2'-0" cutout.
Add 3"-5 A1 rods @ 8" O.C. in area of 2'-0" cutout.
Leg of existing #5 rods to be cut off 10" from Sd'wk in area of cutout.
SECTION A-A
Scale 3/4"=1'-0"
694-2112
BEAM GUARD RAIL ATTACHMENT
1/8" Thick steel washer
1/8" Thick bronze washer
17/64 Long Spacer
12 Gage (7/64") Beam Guard Rail.
SECTION B-B
Scale 1/2 Full Size
Note: If the Contractor elects to use an alternative end section, a sample of the proposed end section shall be submitted to the Engineer and must be approved by him before use on the Project.
27 1/2"
℄ Post Bolt Slot
12 1/2" Lap
Same as Section thru Rail Element
TERMINAL SECTION 3"=1'-0"
Dimensions as shown
Gauge - 12ga only
Mat'l Open Hearth or Elec. Fce Steel
General Notes
767-4345
Lap in direction of Traffic
Terminal Section
Ground Line
6"x8"x 5'-9" Long, Wood Posts Creosoted
INSTALLATION USING WOOD POSTS
Post Bolt 5/8 N.C.-2 9 1/2" long, 2" Thread 5/8" N.C.-2 Nut Washer, one each per post
Rail Element
6"x8"x 5'-9" long Wood Post
SECTION
℄ Post Bolt Slot
Terminal Section lapped on Traffic Face Both Ends
Wood or Steel Posts
Face of Beam Guard Rail
Direction of Traffic
OFFSET AT APPROACH END
INSTALLATION USING STEEL POSTS
Steel Post 3"x4" I @ 8.5# 5'-9" long End Post
Splice Bolts 8 per joint
RAIL SPLICE 3"=1'-0"
POST BOLT SLOT
FULL SCALE
SPLICE BOLT SLOT
FULL SCALE
SPLICE BOLT FULL SCALE
8 req'd per splice
POST BOLT
Same except Length
1 req'd per post
Std. length:
2" for steel posts
9 1/2" for wood post
2" of thread
NUT - FULL SCALE
9 req'd per Rail Element
STANDARD BEAM GUARD RAIL
Scales as Indicated
CAMDEN COUNTY ROAD FILE NO. 670
23
BURNT MILL ROAD #670
VOORHEES TWP.

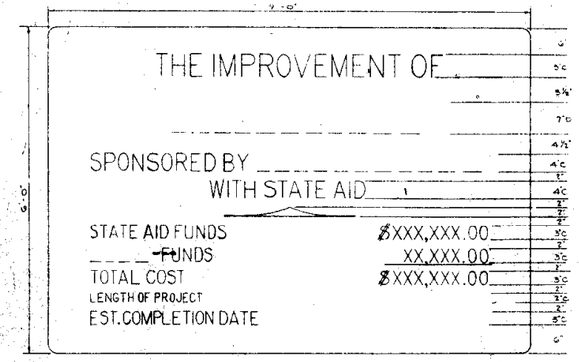
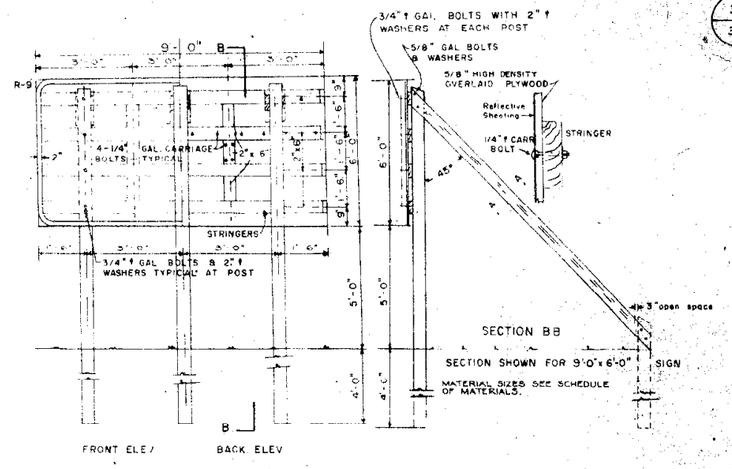


FIGURE No. 1

Note: Sign legend to be as directed by the Engineer.



GENERAL NOTES

Backing Material (Alternatives)

Plywood shall be 5/8" minimum thickness, exterior type, manufactured in accordance with "Commercial Standard CS 45-60 for Douglas Fir Plywood" of the U. S. Department of Commerce.

Sign Faces

Sign faces shall be of reflective sheeting having glass spheres embedded within a tastable, transparent plastic with a smooth, flat outer surface as exposed in use and a backing of synthetic sheet resins or other suitable non-cellulosic materials. The sheeting shall be weather resistant, shall have a pre-coated adhesive on the back, and shall be applied to the previously prepared sign blanks in accordance with the manufacturer's recommendations.

"supports"

Sign supports shall be of well seasoned lumber, S4S, free of splits, knots and warp, or of steel components subject to the approval of the Engineer.

Fastenings

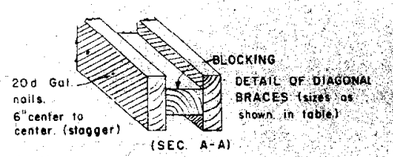
All signs shall be securely fastened to their supports with bolts, nuts and washers of aluminum (2024 - T4 alloy) or hot-dip galvanized steel (A.S.T.M. 153).

General

All signs shall comply with the requirements of U.S. Department of Commerce, Bureau of Public Roads "Manual of Uniform Traffic Control Devices for Streets and Highways", 1961.

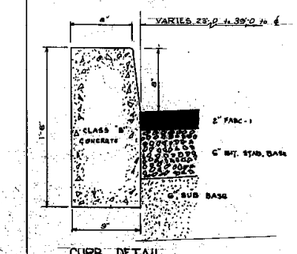
Letters and numerals shall conform to "Standard Alphabets for Highway Signs", U. S. Department of Commerce, Bureau of Public Roads, 1961.

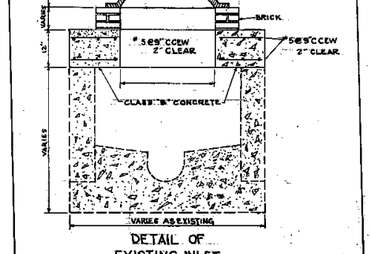
All signs shall be erected with the bottom of the sign not less than 5 feet above the pavement, except that (a) where parked vehicles or other obstacles are likely to occur, the bottom of the sign shall be not less than 7 feet above the pavement, and (b) subject to the approval of the Engineer, signs mounted on barricades, or temporary signs in the roadway, may ~~have~~ be lower heights as indicated by circumstances.



SCHEDULE of MATERIALS — TEMP. SIGN

SIGN SIZE	NO OF PANELS	PANEL SIZES	SIZE OF STRINGERS	SIZE POSTS	DIAGONAL BRACES	BRACE BLOCKING
9'-6"	1	9'-6"	3-2" x 6"	3-4"x6"	2-2"x6"	1-3" x 4"





PLAN No. 22

BURNT HILL ROAD T-670
VOORHEES TWP.

● INDICATES LOW BIDDER

* ERROR IN ADDITION
X ERROR IN EXTENSION

SUMMARY OF BIDS RECEIVED FOR THE RECONSTRUCTION OF BURNT MILL ROAD FROM [redacted] ROAD TO ROUTE HORSE ROAD, VOORHEES TOWNSHIP, CAMDEN COUNTY, N.J.

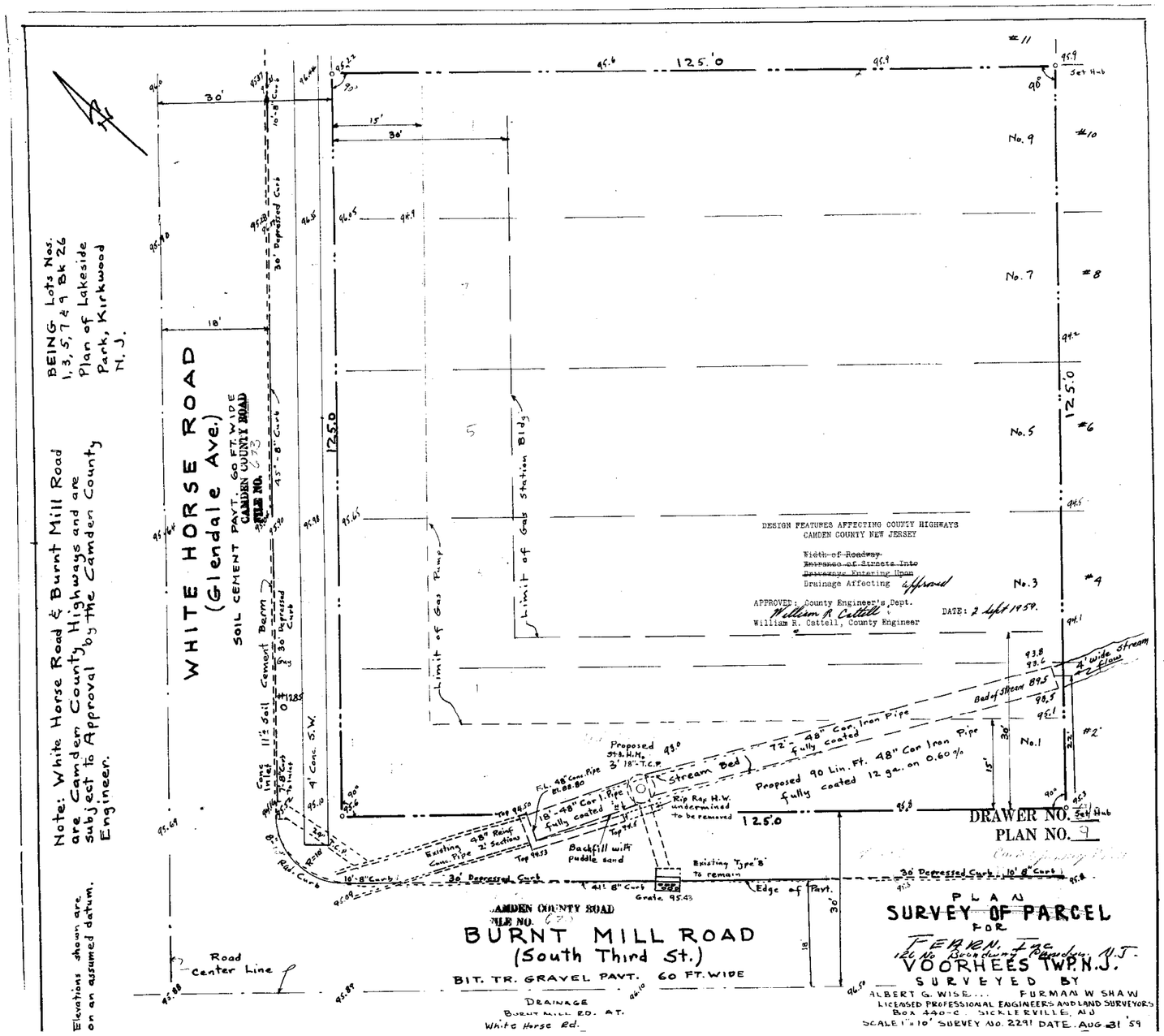
THURSDAY, JULY 30, 1970 AT 9:30 A. M. PREVAILING TIME - CAMDEN COUNTY COMPLEX, EGG HARBOR ROAD, LINDENWOLD, N. J.

I certify that this is a true copy of the Bids received.

Clerk of the Board

CAMDEN COUNTY ROAD
FILE NO. 670
PLAN NO.

ITEM NOS.	DESCRIPTIONS	APPROXIMATE QUANTITIES	A. J. Piergrosse, Inc. 209 Adams Street Riverside, N. J. Cert.Check $20,000.00		Union Paving Company 1 E. Wynnewood Road Wynnewood, Pa. 19096 Cert.Check $ 20,000.00		The Conduit & Foundations Corporation 37 Stefanic Avenue E. Paterson, New Jersey Cert.Check $20,000.00		Clarence C. Hansellman, Inc. 2416 W.Horse Pike P. O. Box 755 Cologne,N.J.08213 Cert.Check $20,000.0		So. Jersey Construction Company Box #8 Clendora, New Jersey Cert.Check $20,000.00		Joseph Lafferty & Sons, Inc. Route #70 Medford, New Jersey Cert.Check $ 20,000.00		Cert.Check $	
			Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1.	Roadway, Excavation Earth	14,175 C.Y.	2.18	$30,901.50	2.14	$30,334.50	3.00	$42,525.	4.00	$56,700.00	5.10	72,292.50	2.00	28,350.00		
2.	Exca.Subsurface Str. Add. Depth & Test Pits	50 C.Y.	6.25	312.50	11.00	550.00	12.00	600.00	100.00	5000.00	50.00	2500.00	10.00	500.00		
3.	Subbase 6" Thick Type 2 Class B	4,130 C.Y.	5.85	24,160.50	4.65	19,204.50	9.00	37,170.	7.25	29,942.50	8.00	33,040.00	3.00	12,390.00		
4.	Channel Excavation	231 C.Y.	3.50	808.50	5.50	1,270.50	7.00	1,617.00	17.25	3984.75	20.00	4620.00	5.00	1155.00		
5.	Bit. Stab Base Course 6" Thick, Mix #1	24,780 S.Y.	4.00	99,120.00	3.74	92,677.20	3.50	86,730.00	5.00	123,900.00	3.60	89,208.00	3.00	74,340.00		
6.	Prime Cost MC-30 or 70	2500 Gals.	.40	1,000.00	.30	750.00	.30	750.00	.40	1,000.00	.30	750.00	.18	450.00		
7.	FABCol Surface Pave 2" Thick Mix #5	25,581 S.Y.	1.37	35,265.17	1.31	33,720.71	1.25	32,176.25	1.63	41,957.83	1.20	30,889.20	1.30	33,463.30		
8.	Const. 12" R.C.C. Storm Drain	5 L.F.	8.90	44.50	16.00	80.00	70.00	350.00	17.75	88.75	18.00	90.00	15.00	75.00		
9.	Const. 18" R. C. C. Storm Drain	2,753 L.F.	6.90	18,995.70	12.70	34,963.10	13.00	35,789.00	18.65	51,343.45	20.00	55,060.00	11.60	31,934.80		
10.	Construction 22"x 13" C.A.P. (16ga.)	524 L.F.	7.15	3,746.60	9.25	4847.00	18.00	9432.00	20.40	10,689.60	21.00	11,004.00	8.40	4,401.60		
11.	Construction Sp.M. H. HRC	1 Unit	288.00	288.00	280.00	280.00	350.00	350.00	600.00	600.00	500.00	500.00	255.00	255.00		
12.	Construct. Manhole	2 Units	375.00	750.00	465.00	930.00	750.00	1500.00	600.00	1200.00	600.00	1200.00	425.00	850.00		
13.	Const. Special Manhole	1 Unit	375.	375.	630.	630.00	1400.00	1400.00	1200.00	1200.00	1100.00	1100.00	575.00	575.00		
14.	Const. Inlet Type "M"	19 Units	415.	7885.	575.	10,925.	600.00	11,400.	600.00	11,400.	600.00	11,400	525.00	9975.00		
15.	Const. Inlet Type "M" Det.2	2 Units	465.	930.00	630.00	1260.00	750.00	1500.00	500.	1000.00	500.00	1000.00	575.00	1150.00		
16.	Reg. Inlet Type M Det. 1	1 Unit	5351	535.00	520.00	520.00	600.00	600.00	500.00	500.00	500.00	500.00=	475.00	475.00		
17.	Reset Manhole Head	20 Units	40.00	800.00	65.00	1300.00	100.00	2000.00	100.00	2000.00	100.00	2000.00	60.00	1200.00		
18.	Constr. Conc. Curb 9" x 20" Cl. "C"	9234 L.F.	3.60	33,458.40	3.20	29,740.80	4.25	39,499.50	4.35	40,428.90	5.50	51,117.00	3.00	27,882.00		
19.	Const. Conc. Sdwk. 4" Thick Cl C	784 S.Y.	6.60	5174.40	6.85	5,370.40	10.00	7840.00	11.60	9094.40	12.00	9408.00	6.25	4900.00		
20.	Const. Conc Sdwk. 6" Thick Cl C	74 S.Y.	8.40	621.60	7.70	569.80	12.00	888.00	12.70	939.80	13.00	962.00	7.05	521.70		
21.	Const. Rein Concrete Sidewalk 6" Thick Class C	51 S.Y.	9.50	484.50	8.60	438.60	17.00	867.00	14.20	724.20	15.00	765.00	7.85	400.35		
22.	Const. FABC Drive 2" Thick, Mix #5	344 S.Y.	3.00	1032.00	4.80	1651.20	2.50	860.00	5.00	1720.00	4.00	1376.00	2.00	688.00		
23.	Reset Water Valve Box	4 Units	100.00	400.00	44.00	176.00	150.00	600.00	130.00	520.00	130.00	520.00	40.00	160.00		
24.	Reset Roof Drain	20 L.F.	8.00	160.00	5.50	110.00	35.00	700.00	15.00	300.00	16.00	320.00	5.00	100.00		
25.	Class C Concrete in Struc.	3 C.Y.	200.00	600.00	190.00	570.00	350.00	1050.00	200.00	600.00	200.00	600.00	175.00	525.00		
26.	Reset Monument	1 Unit	45.00	45.00	44.00	44.00	150.00	150.00	200.00	200.00	200.00	200.00	40.00	40.00		
27.	Fertilizing and Seeding	684 S.Y.	.33	225.72	.33	225.72	.35	239.40	.75	513.00	.75	513.00	.30	205.20		
28.	Construct 4" Topsoil and Seeding	2821 S.Y.	.85	2397.85	1.26	3554.46	2.25	6347.25	3.00	8463.00	3.00	8463.00	1.1618869 X 1.15	3221.15		
29.	Sodding	105 S.Y.	1.50	157.50	1.37	143.85	3.00	315.00	3.00	315.00	4.00	420.00	1.25	131.25		
30.	Clearing Site	Lump Sum	9000.00	9000.00	22,000.	22,000.	32,010.	32,010.	16,634.50	16,634.50	25,000.	25,000.	24,133.00	24,133.00		
31.	Relocate Water Meter and Box	6 Units	115.00	690.00	110.00	660.00	250.00	1500.00	150.00	900.00	150.00	900.00	100.00	600.00		
32.	18" Corr. Alum. Pipe (16 Ga.)	16 L.F.	6.45	103.20	11.00	176.00	25.00	400.00	15.00	240.00	15.00	240.00	10.00	160.00		
33.	Relay Rip Pipe	2 Units	135.00	270.00	38.00	76.00	200.00	400.00	100.00	200.00	100.00	200.00	35.00	70.00		
34.	Beam Type Guard Rail	100 L.F.	6.00	600.00	5.50	550.00	10.00	1000.00	15.00	1500.00	15.00	1500.00	5.00	500.00		
B-1	Foundation Excava.	210 C.Y.	41.00	8610.00	22.00	4620.00	10.00	2100.00	35.00	7350.00	38.00	7980.00	20.00	4200.00		
B-2	Crushed Stone Bed	31 C.Y.	18.00	558.00	15.00	465.00	25.00	775.00	65.00	2015.00	66.00	2046.00	13.50	418.50		
B-3	Grouted Rip Rap Slope Prot.	625 S.Y.	18.00	11,250.00	15.00	9375.00	25.00	15,625.00	30.00	18,750.	31.00	19,375.00	15.00	9375.00		
B-4	Class C Concrete in Structure	50 C.Y.	132.00	6600.00	215.00	10,750.	75.00	3750.00	200.00	10,000.	250.00	12,500.00	195.00	9750.00		
B-5	Class B Concrete in Structure	90 C.Y.	300.00	27,000.00	240.00	21,600.00	250.00	22,500.00	200.00	18,000.	250.00	22,500.00	220.00	19,800.00		
B-6	Concrete Parapet Class A	80 L.F.	35.00	2800.00	40.00	3200.00	35.00	2800.00	35.00	2800.00	40.00	3200.00	35.00	2800.00		
B-7	Rein. Steel In Structure	17,395 Lbs.	.50	8697.50	.33	5740.35	.50	8697.50	.30	5218.50	.30	5218.50	.30	5218.50		
B-8	Metal Bridge Rail. (alum) 1 Rail	70 L.F.	25.00	1750.00	37.00	2590.00	18.00	1260.00	70.00	4900.00	70.00	4900.00	33.50	2345.00		

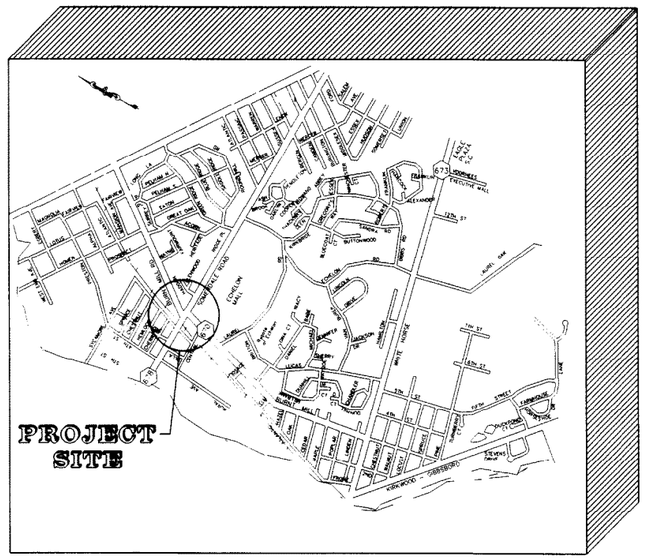

BEING Lots Nos. 1, 3, 5, 7 & 9 Bk 26 Plan of Lakeside Park, Kirkwood N. J.
Note: White Horse Road & Burnt Mill Road are Camden County Highways and are subject to Approval by the Camden County Engineer.
Elevations shown are on an assumed datum.
WHITE HORSE ROAD (Glendale Ave.)
CAMDEN COUNTY ROAD FILE NO. 673
60 FT. WIDE COUNTY ROAD
SOIL CEMENT PAVT.
Soil Cement Berm
4' Conc. S.W.
Curb Inlet
Road Center Line
125.0
30'
15'
18'
No. 9
No. 7
No. 5
No. 3
No. 1
#10
#8
#6
#4
#2
Limit of Gas Station Bldg
Limit of Gas Pump
DESIGN FEATURES AFFECTING COUNTY HIGHWAYS
CAMDEN COUNTY NEW JERSEY
Width of Roadway
Entrance of Streets Into
Driveways Entering Upon
Drainage Affecting Approved
APPROVED: County Engineer's Dept.
William R. Cattell
William R. Cattell, County Engineer
DATE: 2 Sept 1959.
Proposed Sta. H.H. 3' 18"-T.C.P.
Stream Bed
72'-48" Cor. Iron Pipe fully coated
Proposed 90 Lin. Ft. 48" Cor Iron Pipe fully coated 12 ga. on 0.60 %
18'-48" Cor. Pipe fully coated
Rip Rap H.W. undermined to be removed
Existing Conc. Pipe 98" Reinf. 2' Sections
Backfill with Puddle sand
Existing Type 'S' to remain
Grate 95.43
Edge of Pavt.
30' Depressed Curb
10'-8" Curb
4'1" 8" Curb
4'-8" Curb
Bed of Stream 89.5
4' wide Stream ± 2' flow
Set H-b
DRAWER NO.
PLAN NO. 9
CAMDEN COUNTY ROAD
FILE NO. 673
BURNT MILL ROAD
(South Third St.)
BIT. TR. GRAVEL PAVT. 60 FT. WIDE
DRAINAGE
BURNT MILL RD. AT.
White Horse Rd.
PLAN
SURVEY OF PARCEL
FOR
FERBEN, Inc.
120 No. Broadway, Pennsauken, N.J.
VOORHEES TWP. N.J.
SURVEYED BY
ALBERT G. WISE... FURMAN W SHAW
LICENSED PROFESSIONAL ENGINEERS AND LAND SURVEYORS
BOX 440-C SICKLERVILLE, N.J.
SCALE 1"=10' SURVEY NO. 2291 DATE. AUG 31 '59

INTERSECTION IMPROVEMENTS

BURNT MILL ROAD (C.R. 670) & SOMERDALE ROAD (C.R. 678)

UTILITIES

SANITARY SEWER:	VOORHEES TOWNSHIP SANITARY SEWER DEPARTMENT RURAL AVENUE VOORHEES, N.J. 08043
WATER :	NEW JERSEY AMERICAN WATER COMPANY 515 GROVE STREET HADDON HEIGHTS, N.J. 08035 VOORHEES, N.J. 08043
GAS :	SOUTH JERSEY GAS COMPANY ENGINEERING DEPARTMENT 142 S. MAIN STREET GLASSBORO, N.J. 08028
ELECTRIC :	ATLANTIC ELECTRIC ELLIS STREET GLASSBORO, N.J 08028 PUBLIC SERVICE ELECTRIC COMPANY 300 NEW ALBANY ROAD MOORESTOWN, N.J. 08057
TELEPHONE :	NEW JERSEY BELL TELEPHONE 2225 EVESHAM ROAD VOORHEES, N.J. 08043
CABLE :	GARDEN STATE CABLE TV 1250 HADDONFIELD-BERLIN ROAD CHERRY HILL, N.J. 08034
AT&T	TRANSCONTINENTAL CABLE ROUTE UNDERGROUND LOCATION SERVICE NEW JERSEY UTILITIES ASSOCIATION (800-252-1133)



LOCATION MAP

INDEX

VOORHEES TOWNSHIP

CAMDEN COUNTY, NEW JERSEY

SCANNED

NO.	REVISION	DATE	BY	CHK. BY
1	GENERAL REVISIONS AND UPGRADES		D.M.	K.W.B.

TITLE SHEET

BURNT MILL/SOMERDALE ROADS
COUNTY ROUTE #670 & #678
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

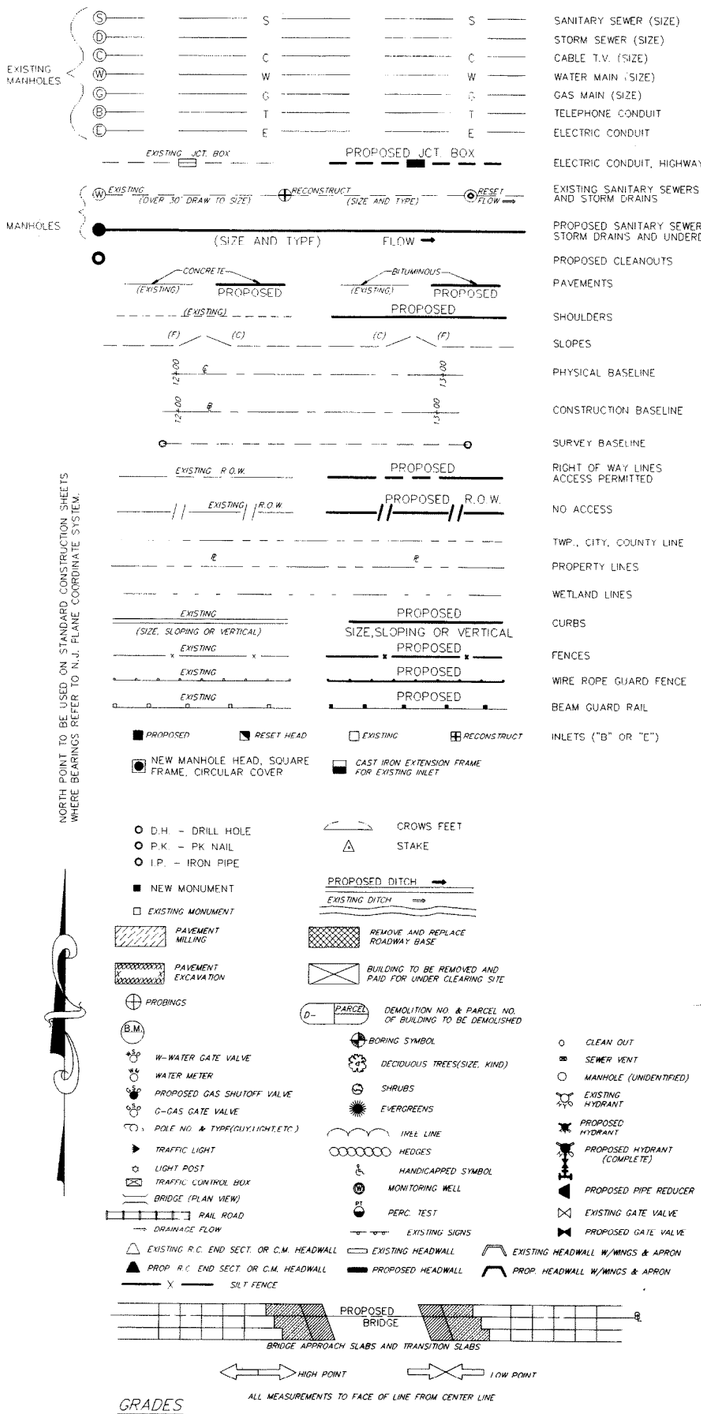
Edward Vernick DATE: 12/24/96

EDWARD VERNICK PROFESSIONAL ENGINEER LIC. NO. 25691

REMINGTON & VERNICK ENGINEERS
232 KING'S HIGHWAY EAST HADDONFIELD, N.J. 08033
(609) 795-9595, FAX (609) 795-1882

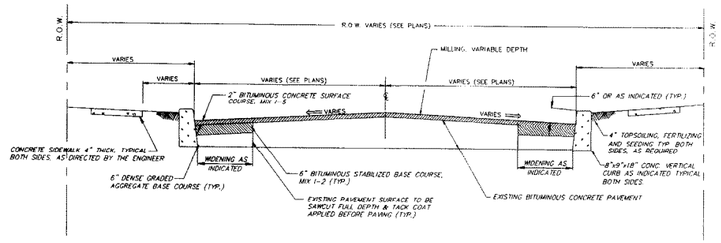
SCALE	DATE	DRAWN BY	DSGN. BY	CHK'D. BY	DWG. NO.	SHEET
N.T.S.	12/96	D.M.	K.W.B.		043-93	1 OF

STANDARD LEGEND



ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PLAN QUANTITY	IF & WHERE DIRECTED	CONTRACT QUANTITY	AS-BUILT QUANTITY
1	MAINTENANCE & PROTECTION OF TRAFFIC	LS	-	-	LUMP SUM	
2	CLEARING SITE	LS	-	-	LUMP SUM	
3	MILLING, VARIABLE DEPTH	SY	8777	873	9650	
4	ROADWAY EXCAVATION, EARTH	CY	1165	135	1300	
5	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	SY	1795	205	2000	
6	BITUMINOUS STABILIZED BASE COURSE, MIX I-2, 6" THICK	TON	620	80	700	
7	BITUMINOUS CONCRETE SURFACE COURSE, MIX I-5, 2" THICK	TON	1215	135	1350	
8	12" REINFORCED CONCRETE PIPE, CLASS V	LF	5	10	15	
9	15" REINFORCED CONCRETE PIPE, CLASS V	LF	35	5	40	
10	INLETS TYPE, "B", BICYCLE SAFE GRATE	UNIT	5	0	5	
11	INLETS TYPE, "E", BICYCLE SAFE GRATE	UNIT	1	0	1	
12	INLETS CONVERTED TO MANHOLES	UNIT	8	0	8	
13	RECONSTRUCTED INLETS TYPE, "B", USING NEW CASTING, BICYCLE SAFE GRATE	UNIT	1	0	1	
14	RESET CASTINGS	UNIT	2	2	4	
15	RESET VENT/VALVE BOXES	UNIT	2	2	4	
16	9"x18" CONCRETE VERTICAL CURB	LF	2225	225	2450	
17	CONCRETE SIDEWALK, 4" THICK	SY	156	19	175	
18	CONCRETE DRIVEWAY, 6" THICK	SY	0	35	35	
19	CONCRETE DRIVEWAY, REINFORCED, 6" THICK	SY	675	70	745	
20	BITUMINOUS CONCRETE DRIVEWAY, 4" THICK	SY	125	15	140	
21	CHAIN-LINK FENCE, ALUMINUM COATED STEEL, 8' HIGH WITH BARBED WIRE	LF	155	15	170	
22	GATES, CHAIN-LINK FENCE, ALUMINUM COATED STEEL, 30' WIDE, SLIDING CANTILEVERED WITH BARBED WIRE	UNIT	1	0	1	
23	TOPSOILING, 4" THICK	SY	1250	150	1400	
24	FERTILIZING & SEEDING, TYPE A-3	SY	1250	150	1400	
25	STRAW MULCHING	SY	1250	150	1400	
26	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN	LF	10760	1140	11900	
27	TRAFFIC MARKINGS, LONG LIFE, HOT APPLIED THERMOPLASTICS	SF	1510	190	1700	
28	REMOVAL OF TRAFFIC STRIPES	LF	2500	500	3000	
29	SIGNS, TYPE IIIB RETROREFLECTIVE SHEETING	SF	144	26	170	
30	1.5" RIGID METAL CONDUIT, TYPE CUC	LF	330	70	400	
31	3" RIGID METAL CONDUIT, TYPE CUC	LF	91	39	130	
32	3" RIGID METAL CONDUIT, TYPE CUR	LF	445	55	500	
33	SERVICE WIRE, 1/C NO.6 AWG	LF	160	40	200	
34	FOUNDATION, TYPE "P-MC"	UNIT	1	0	1	
35	FOUNDATION, TYPE "SFK"	UNIT	4	0	4	
36	18"x36", JUNCTION BOX	UNIT	4	-	5	
37	20" DIAMETER, JUNCTION BOX	UNIT	7	-	8	
38	LOOP DETECTOR	LF	2321	279	2600	
39	LOOP DETECTOR LEAD	LF	6295	705	7000	
40	PUSH BUTTON ASSEMBLIES	UNIT	8	0	8	
41	PEDESTRIAN SIGNAL ASSEMBLIES, TYPE "W-1"	UNIT	8	0	8	
42	TRAFFIC SIGNAL ASSEMBLIES, TYPE "MM-1"	UNIT	2	0	2	
43	TRAFFIC SIGNAL ASSEMBLIES, TYPE "25MK-2"	UNIT	3	0	3	
44	TRAFFIC SIGNAL ASSEMBLIES, TYPE "30MK-2"	UNIT	1	0	1	
45	TRAFFIC SIGNAL CABLE, 2 CONDUCTOR, No. 14 AWG	LF	840	160	1000	
46	TRAFFIC SIGNAL CABLE, 5 CONDUCTOR, No. 14 AWG	LF	870	130	1000	
47	TRAFFIC SIGNAL CABLE, 10 CONDUCTOR, No. 14 AWG	LF	840	160	1000	
48	TRAFFIC SIGNAL STANDARDS, TYPE "K"	UNIT	4	0	4	



TYPICAL SECTION

N.T.S.

GENERAL NOTES:

1. ALL ELEVATIONS REFER TO ASSUMED DATUM.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. ANY ERRORS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
3. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR SHALL USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
5. ALL PAVED AND CONCRETE AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED PRIOR TO THE START OF CONSTRUCTION.
6. ALL GRASSED OR WOODED AREAS DISTURBED DURING CONSTRUCTION SHALL BE TOPSOILED AND SEEDED.
7. ALL FILL SHALL BE PLACED IN 12" LAYERS AND THOROUGHLY COMPACTED TO THE SATISFACTION OF THE ENGINEER. IF BORROWED FILL IS REQUIRED, IT SHALL BE CLEAN GRANULAR SOIL AND IT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT HIS OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT HE DAMAGES.
9. BASELINES HAVE BEEN PROVIDED ON THE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE THE BASELINE AS SHOWN ON THE PLAN.
10. ALL COST ASSOCIATED WITH ADJUSTMENT OF CASTING ELEVATIONS FOR "INLETS CONVERTED TO MANHOLES" SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THESE ITEMS. FINAL ELEVATIONS SHALL BE DETERMINED IN THE FIELD.
11. ALL CONSTRUCTION DETAILS NOT SHOWN SHALL BE IN ACCORDANCE WITH N.J.D.O.T. STANDARDS AS DETAILED IN:
    - "STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS."
    - "ELECTRICAL BUREAU STANDARD DETAILS."

    INCLUDING ALL APPLICABLE A.D.V. REVISIONS AND APPENDICES. THESE DETAILS MAY BE PURCHASED THROUGH THE D.O.T. PLANS AND SPECIFICATIONS DISTRIBUTION CENTER AT:

    1035 PARKWAY AVENUE,
    TRENTON, NEW JERSEY
    08625-0600
    (TELEPHONE: 609-530-2098)
12. CURB PIECES FOR INLETS, TYPE "B" ARE 8" UNLESS OTHERWISE INDICATED.

SCANNED

NO.	REVISION	DATE	BY	CHK. BY
1	GENERAL REVISIONS AND UPGRADES	12/96	M.J.	

GENERAL NOTES, QUANTITIES & SECTIONS

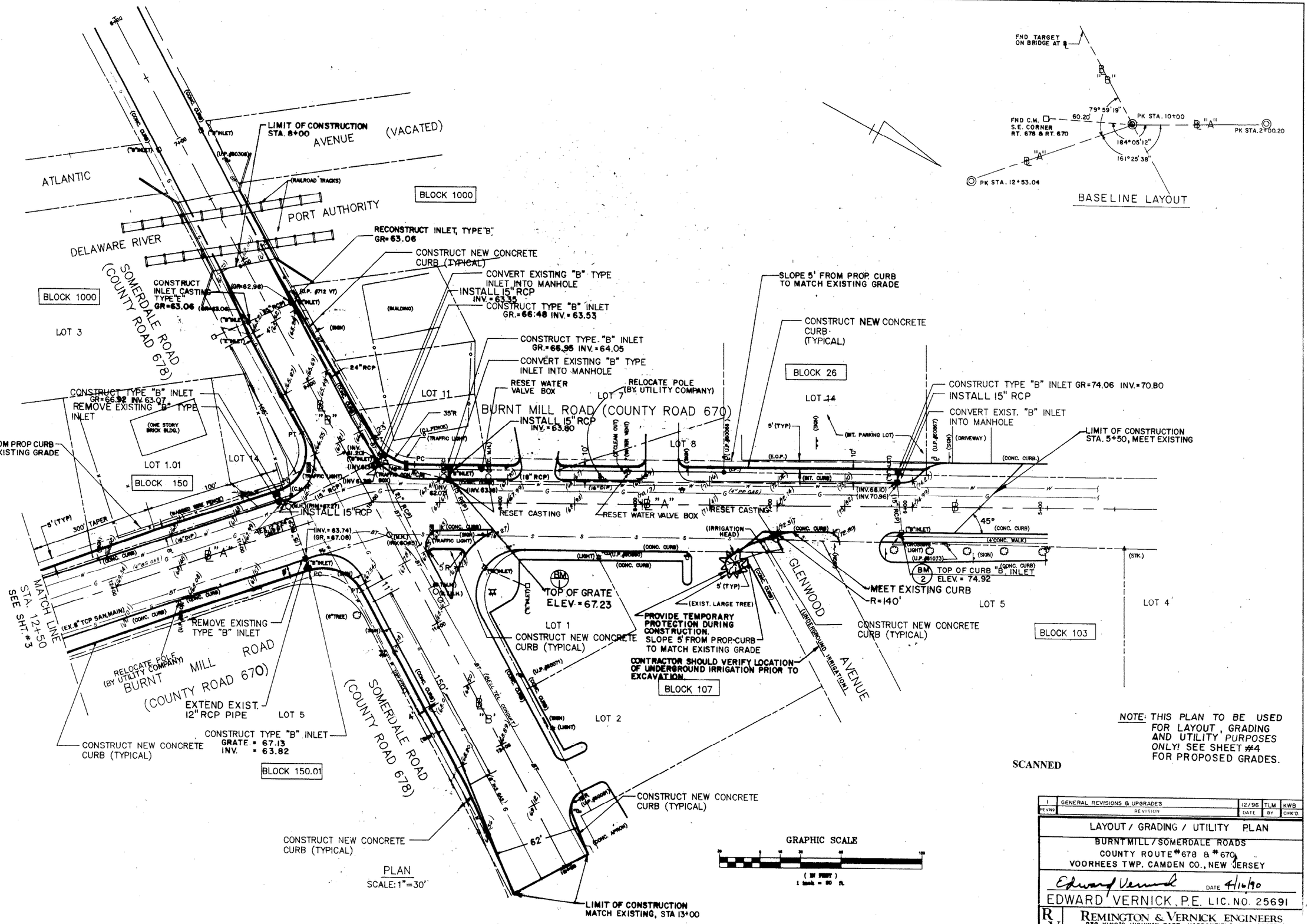
BURNT MILL/SOMERDALE ROADS
COUNTY ROUTE #670 & #678
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

Edward Vernick DATE: 12/24/96

EDWARD VERNICK PROFESSIONAL ENGINEER LIC. NO. 25691

REMINGTON & VERNICK ENGINEERS
232 KING'S HIGHWAY EAST HADDONFIELD, N.J. 08033
(609) 795-9595, FAX (609) 795-1882

SCALE	DATE	DRAWN BY	DSGN. BY	CHK'D. BY	DWG. NO.	SHEET NO.
N.T.S.	12/96	M.J.	K.W.B.		0434[illegible]	2 OF 8



NOTE: THIS PLAN TO BE USED FOR LAYOUT, GRADING AND UTILITY PURPOSES ONLY! SEE SHEET #4 FOR PROPOSED GRADES.

SCANNED

REVNS	REVISION	DATE	BY	CHK'D
1	GENERAL REVISIONS & UPGRADES	12/96	TLM	KWB

LAYOUT / GRADING / UTILITY PLAN

BURNT MILL / SOMERDALE ROADS
COUNTY ROUTE #678 & #670
VOORHEES TWP. CAMDEN CO., NEW JERSEY

Edward Vernick DATE 4/16/90

EDWARD VERNICK, P.E. LIC. NO. 25691

REMINGTON & VERNICK ENGINEERS
232 KING'S HIGHWAY EAST HADDONFIELD, N.J. 08033
(609) 795-9595

SCALE 1" = 30' DATE 9/11/89 DRAWN MJ CK'D BY

TOWNSHIP ROAD

TOWNSHIP

DELAWARE

EVESHAM

VOORHEES

Sta 61+89

BUENT MILL ROAD

70+00

80+00

Sta 62+04 To Sta 72+49
Side Shaping 470 Sq yds
Turfing 528 Sq yds
Stripping 528 Sq yds

Sta 72+44 To Sta 75+08
Side Shaping 478 Sq yds
Turfing 528 Sq yds
Stripping 528 Sq yds
Guard Rail (Reset) 157 Lin Ft.
Ditching 40 Cu yds
18" E.C. Pipe 20 Lin Ft.

Sta 75+08 To Sta 91+45
Side Shaping 2910 Sq yds
Turfing 3274 Sq yds
Stripping 3274 Sq yds

Sta 91+45 To Sta 93+54
Side Shaping 400 Sq yds
Turfing 475 Sq yds
Stripping 200 Sq yds
Guard Rail (Reset) 200 Lin Ft.
36" E.C. Pipe 20 Lin Ft.

Sta 93+54 To Sta 95+96
Excavation 132 Cu yds
Side Shaping 430 Sq yds
Turfing 450 Sq yds
Stripping 450 Sq yds

Sta 95+96 To Sta 106+52
Side Shaping 1877 Sq yds
Turfing 1950 Sq yds
Stripping 1877 Sq yds.

Sta 106+52 To Sta 144+07
Side Shaping 10,848 Sq yds
Turfing 12,000 Sq yds
Stripping 10,848 Sq yds
Guard Rail (Reset) 250. Lin Ft.
12" C.I.P. 40 Lin Ft.

Sta 118+00
Remove & Reset 18" C.I.P. - 92 Lin Ft.
Ditching 30 Cu. Yds.

16" C.I.P. 94 Lin Ft.
12" Cont. Pipe 94 Lin Ft.
Inlets (Eliminated) 3 Units
Manhole (Eliminated) 1 Unit
72 Sq Ft Removed
12" C.I.P. 100 Lin Ft.

SOMERDALE ROAD

Sta 93+54

106+00

116+00

120+00

Sta 130+79 To Sta 144+07
Conc. Side Walk Reset 2112 Sq Ft.

Sta 67+80 To Sta 144+07
Excavation - 2034 Cu yds
Oiled Gravel Mulch - 1353 Sq yds

WHITE HORSE RD

BUENT MILL ROAD

120+00

144+06

180+00

Sta 120+00
To be Constructed
12" Cont. Pipe 10 Lin Ft.
Manhole 1 Unit.

BUENT MILL ROAD

DRAWER NO. 6-12-4
PLAN NO. 18

APPENDIX C

Tax Maps

ADJOINS

4

PLATE

BLOCK

BURNT MILL (FORMERLY HADDONFIELD AVENUE)

ROAD

ADJOINS

ADJOINS

PLATE

5

RURAL AVENUE

MATCH LINE

RAIL ROAD

DELAWARE RIVER PORT AUTHORITY

HAZEL AVE.

ASH

CEDAR

MAPLE

POPLAR

LINDEN

HORSE

WHITE

FRONT STREET

SECOND STREET

HIGH SPEED RAIL LINE

R.O.W.

BLOCK EASEMENT LIMIT

LOT LIMIT

15' WD. SEWER UTILITY

10' WD. CONSERVATION EASEMENT

SIGHT EASEMENT

PERMANENT EASMNT. TO CCMUA

SITE TRIANGLE EASMNT.

35' WD. PERMANENT EASMNT. TO CCMUA

12.5' FUTURE ROW.

68

69

70

71

72

73

74

75

76

77

78

79

80

82

83

84

1000

46

12

13 8.70Ac. 4.22FPA.(S)

15

16

17 1.14Ac.

12.01

19 12.02Ac.(S) 9.61FPA.(S) "EXEMPTED" VOORHEES TWP. SAN. DEPT.

21 "EXEMPTED" DRPA.

20 "EXEMPTED" DRPA.

22 "EXEMPTED" DRPA.

1 1.73Ac.

1 1.16Ac.

2 1.32Ac. 0.02FPA.(S)

1 3.58Ac. 1.52FPA.(S)

5.06 1.15Ac. TOTAL 0.47FPA.(S)

5.01 0.22FPA.(S)

5.02 0.09FPA.(S)

5.03 0.04FPA.(S)

5.04

5.05

5.01 1.00Ac. "EXEMPTED" VOORHEES TWP. VFW.LODGE GREEN ACRES N.J.D.E.P.

6 1.07Ac.

3.02 0.15FPA.(S)

3.01 0.20FPA.(S)

3.03 0.22FPA.(S)

1 1.15Ac. 0.41FPA.(S)

4 "EXEMPTED" DRPA. 0.02FPA.(S)

5 "EXEMPTED" DRPA.

6 "EXEMPTED" CAMDEN CO. PUB. PROP.

DRAINAGE EASEMENT EDEICATED TO TWP.

PROPERTY LINE IS STREAM CENTERLINE

SOUTH BRANCH OF 1920'(S) COOPERS CREEK

TOWNSHIP LINE

SOMERDALE BOROUGH

LINDENWOLD BOROUGH

NOTES:

BURNT MILL ROAD ALSO KNOWN AS HADDON AVE.,HADDONFIELD AVE., LAKESIDE AVE.,PETERSONS MILL ROAD AND THIRD STREET.

WHITE HORSE ROAD ALSO KNOWN AS GLENDALE AVE. AND MOORESTOWN ROAD.

FPA.= PLOOD PLAIN AREA. 1% ANNUAL

TAX MAPS ARE NOT FOR TITLE PURPOSES!!

DRPA.=DELAWARE RIVER PORT AUTHORITY

THIS MAP HAS BEEN REDRAWN USING COMPUTER AIDED DRAFTING/DESIGN (CAD/D) BASED ON THE MAP PREPARED BY ROBERTSON & JOHNSON, DATED: OCTOBER 1, 1960.

ORIGINAL APPROVED MAP IS ON FILE IN THE MUNICIPAL ASSESSORS OFFICE.

NEW JERSEY DEPARTMENT OF THE TREASURY
DIVISION OF TAXATION
ENGINEERING & RAILROAD TAX BUREAU
APPROVED AS A TAX MAP PURSUANT TO THE PROVISIONS OF CHAPTER 176, LAWS OF 1918, ETC. FOR THE DIRECTOR, DIVISION OF TAXATION
BY C.A. Bennett
DATE NOV. 15 1963 STATE SUPP. SERIAL NO. 406

REVISED: OCTOBER, 1, 1964 (A.C. ROBERTSON)

TAX MAP

TOWNSHIP OF VOORHEES

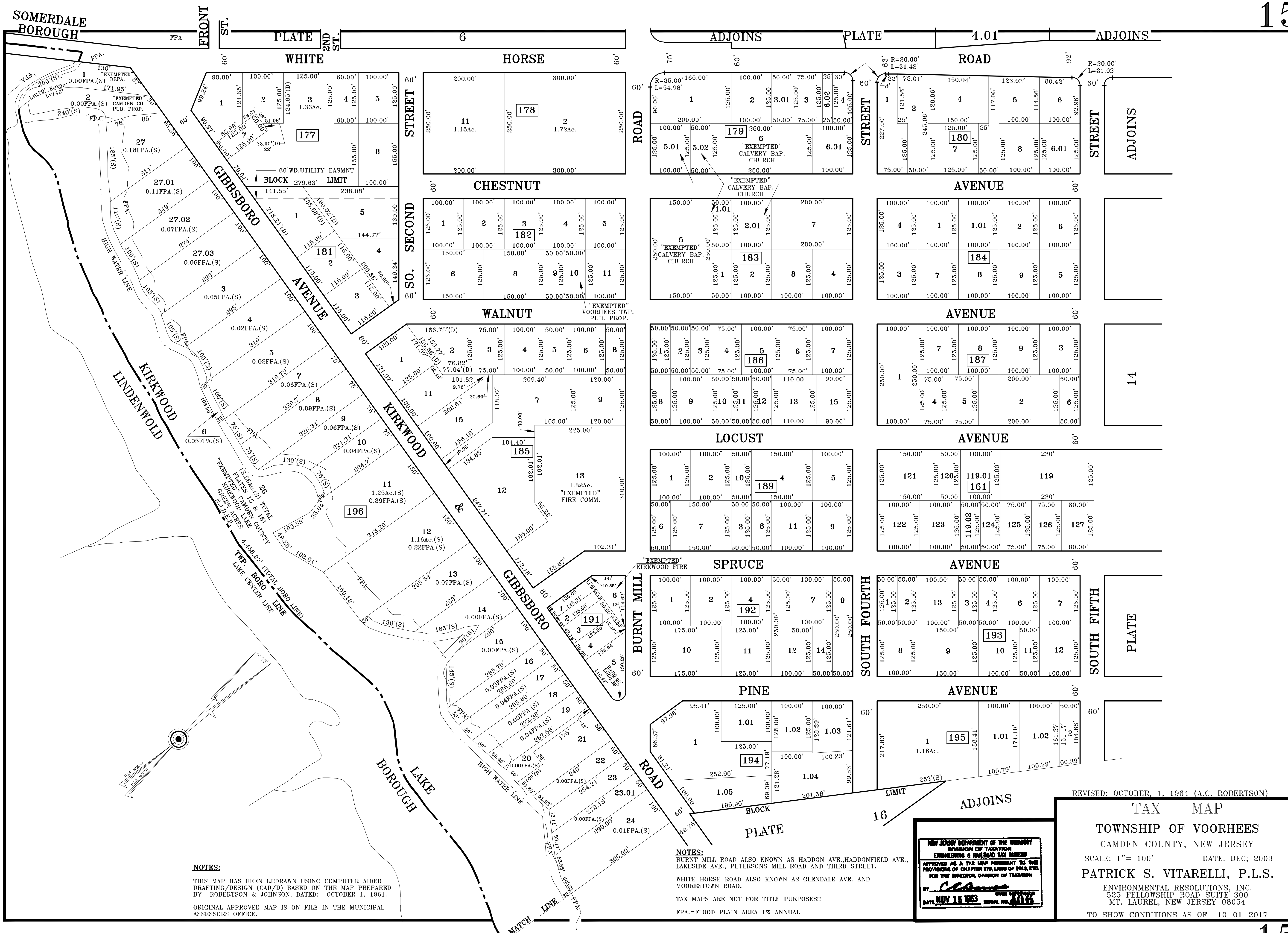
CAMDEN COUNTY, NEW JERSEY

SCALE: 1"= 100' DATE: DEC; 2001

WILLIAM E. ALBURGER, P.L.S.

JCA. ASSOCIATES, INC.
1256 NORTH CHURCH STREET SUITE 3
MORRISTOWN. NEW JERSEY 08057

TO SHOW CONDITIONS AS OF 10-01-2017



NOTES:

THIS MAP HAS BEEN REDRAWN USING COMPUTER AIDED DRAFTING/DESIGN (CAD/D) BASED ON THE MAP PREPARED BY ROBERTSON & JOHNSON, DATED: OCTOBER 1, 1961.

ORIGINAL APPROVED MAP IS ON FILE IN THE MUNICIPAL ASSESSORS OFFICE.

NOTES:

BURNT MILL ROAD ALSO KNOWN AS HADDON AVE.,HADDONFIELD AVE., LAKESIDE AVE., PETERSONS MILL ROAD AND THIRD STREET.

WHITE HORSE ROAD ALSO KNOWN AS GLENDALE AVE. AND MOORESTOWN ROAD.

TAX MAPS ARE NOT FOR TITLE PURPOSES!!

FPA.=FLOOD PLAIN AREA 1% ANNUAL

NEW JERSEY DEPARTMENT OF THE TREASURY
DIVISION OF TAXATION
ENGINEERING & RAILROAD TAX BUREAU
APPROVED AS A TAX MAP PURSUANT TO THE PROVISIONS OF CHAPTER 175, LAWS OF 1913, ETC.
FOR THE DIRECTOR, DIVISION OF TAXATION
BY
DATE NOV 15 1963 SERIAL NO. 406

REVISED: OCTOBER, 1, 1964 (A.C. ROBERTSON)

TAX MAP

TOWNSHIP OF VOORHEES

CAMDEN COUNTY, NEW JERSEY

SCALE: 1"= 100' DATE: DEC; 2003

PATRICK S. VITARELLI, P.L.S.

ENVIRONMENTAL RESOLUTIONS, INC.
525 FELLOWSHIP ROAD SUITE 300
MT. LAUREL, NEW JERSEY 08054

TO SHOW CONDITIONS AS OF 10-01-2017

APPENDIX D

Crash Data

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019

SUMMARY

Total number of crashes
92

Total number of crashes with injury
30

Total number of injuries
39

Total number of crashes with fatality
0

Total number of fatalities
0

Crashes by Day of Week

Day		*Number*
1	Sunday	9
2	Monday	14
3	Tuesday	20
4	Wednesday	13
5	Thursday	16
6	Friday	14
7	Saturday	6

Crashes by Time of Day

Hour	*Number*	*Hour*	*Number*
12 AM	2	12 PM	8
1 AM	0	1 PM	10
2 AM	0	2 PM	7
3 AM	0	3 PM	11
4 AM	1	4 PM	3
5 AM	0	5 PM	10
6 AM	1	6 PM	3
7 AM	6	7 PM	4
8 AM	8	8 PM	3
9 AM	3	9 PM	2
10 AM	5	10 PM	1
11 AM	3	11 PM	1

Crashes by Light Condition

Condition		*Number*
1	Daylight	75
2	Dawn	2
3	Dusk	1
4	Dark (St. Lights Off)	0
5	Dark (No St. Lights)	0
6	Dark (St. Lights On, Cont.)	12
7	Dark (St. Lights On, Spot)	1

Crashes by Crash Type

Type		*Number*
1	Same Direction (Rear End)	25
2	Same Direction (Side Swipe)	11
3	Right Angle	33
4	Opp Dir (Head On, Angular)	0
5	Opp Dir (Side Swipe)	1
6	Stk Pk Veh	0
7	Left Turn / U Turn	14
8	Backing	1
9	Encroachment	0
10	Overturned	0
11	Fixed Object	3
12	Animal	1
13	Pedestrian	3
14	Pedalcycle	0
15	Non-fixed Object	0
16	Railcar-vehicle	0
99	Other	0

Crashes by Environmental Conditions

Condition		*Number*
1	Clear	71
2	Rain	16
3	Snow	2
4	Fog / Smog / Smoke	0
5	Overcast	1
6	Sleet / Hail / Freezing Rain	1
7	Blowing Snow	0
8	Blowing Sand / Dirt	0
9	Severe Crosswinds	0

Crashes by Road Surface Conditions

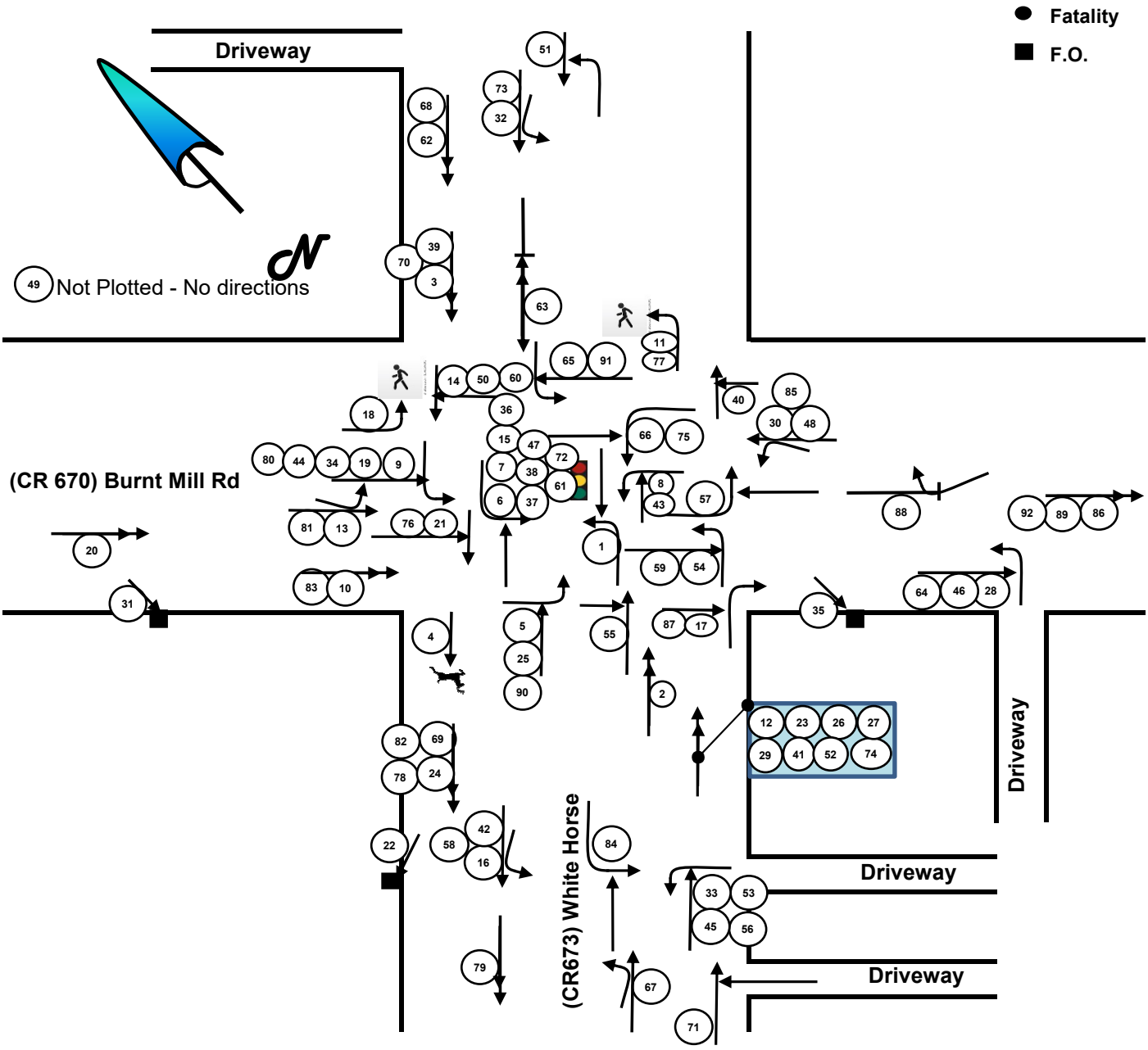
Condition		*Number*
1	Dry	66
2	Wet	21
3	Snowy	1
4	Icy	3
5	Slush	0
6	Water (Standing / Moving)	0
7	Sand / Mud / Dirt	0
8	Oil	0

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date May 4, 2022 **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019



Day

1-	Sun	5	Thur
2-	Mon	6	Fri
3-	Tue	7	Sat
4-	Wed	*	Holiday

Light Condition

1-	Daylight
2-	Dawn
3-	Dusk
4-	Dark (St. Lights off)
5-	Dark (No St. Lights)
6-	Dark (St Lights On, Cont.)
7-	Dark (St Lights On, Spot)

Crash Type

1-	Same Direction (Rear-end)		
2-	Same Direction (Sideswipe)		
3-	Right Angle		
4-	Opposite Direction (Head-on/ Angular)		
5-	Opposite Direction (Sideswipe)		
6-	Parked Vehicle		
7-	Left Turn / U Turn		
8-	Backing	13-	Pedestrian
9-	Encroachment	14-	Pedalcycle
10-	Overturned	15-	Non-fixed Object
11-	Fixed Object	16-	Railcar-vehicle
12-	Animal	99-	Other

Environmental Conditions

1-	Clear	6-	Sleet/Hail/Freezing Rain
2-	Rain	7-	Blowing Snow
3-	Snow	8-	Blowing Sand/Dirt
4-	Fog/Smog/Smoke	9-	Severe Crosswinds
5-	Overcast		

Road Surface Conditions

1-	Dry	5-	Slush
2-	Wet	6-	Water (Standing/Moving)
3-	Snowy	7-	Sand, Mud, Dirt
4-	Icy	8-	Oil

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019

● **Fatality**
■ **F.O.**

#	DATE	DAY	TIME	CT	LC	EC	RS	I	F
1	1/3/2014	6	4:59	7	6	3	3	0	0
2	1/4/2014	7	14:32	1	1	1	4	3	0
3	3/22/2014	7	14:47	1	1	1	1	1	0
4	3/27/2014	5	8:47	12	1	1	1	0	0
5	4/22/2014	3	17:18	3	1	5	1	2	0
6	5/2/2014	6	12:12	7	1	1	1	2	0
7	5/19/2014	2	19:53	7	1	1	1	0	0
8	5/25/2014	1	12:10	3	1	1	1	0	0
9	5/27/2014	3	15:20	3	1	1	1	2	0
10	8/12/2014	3	20:40	1	6	2	2	1	0
11	11/4/2014	3	16:43	13	6	1	1	1	0
12	11/6/2014	5	13:09	1	1	1	2	0	0
13	12/3/2014	4	15:15	2	1	2	2	0	0
14	12/27/2014	7	12:09	3	1	1	1	2	0
15	1/15/2015	5	7:06	7	2	1	1	0	0
16	1/19/2015	2	0:17	2	6	1	4	0	0
17	1/25/2015	1	0:28	3	6	1	4	0	0
18	2/10/2015	3	16:09	13	1	1	1	1	0
19	4/3/2015	6	15:29	3	1	1	1	1	0
20	5/1/2015	6	13:23	1	1	1	1	1	0
21	6/17/2015	4	11:33	3	1	1	1	1	0
22	6/24/2015	4	20:10	11	1	1	1	0	0
23	7/6/2015	2	7:13	1	1	1	1	0	0
24	7/21/2015	3	19:12	1	1	1	1	0	0
25	7/27/2015	2	17:14	3	1	1	1	1	0

CT
LC
EC
RS
I
F

Day

1-	Sun	5	Thur
2-	Mon	6	Fri
3-	Tue	7	Sat
4-	Wed	*	Holiday

Light Condition

1- Daylight
2- Dawn
3- Dusk
4- Dark (St. Lights off)
5- Dark (No St. Lights)
6- Dark (St Lights On, Cont.)
7- Dark (St Lights On, Spot)

Crash Type

1- Same Direction (Rear-end)
2- Same Direction (Sideswipe)
3- Right Angle
4- Opposite Direction (Head-on/ Angular)
5- Opposite Direction (Sideswipe)
6- Parked Vehicle
7- Left Turn / U Turn
8- Backing
9- Encroachment
10- Overturned
11- Fixed Object
12- Animal
13- Pedestrian
14- Pedalcycle
15- Non-fixed Object
16- Railcar-vehicle

Environmental Conditions

1-	Clear	6-	Sleet/Hail/Freezing Rain
2-	Rain	7-	Blowing Snow
3-	Snow	8-	Blowing Sand/Dirt
4-	Fog/Smog/Smoke	9-	Severe Crosswinds
5-	Overcast		

Road Surface Conditions

1-	Dry	5-	Slush
2-	Wet	6-	Water (Standing/ Moving
3-	Snowy	7-	Sand, Mud, Dirt
4-	Icy	8-	Oil

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019

● **Fatality**
■ **F.O.**

#	DATE	DAY	TIME	CT	LC	EC	RS	I	F
26	7/30/2015	5	17:41	1	1	2	2	0	0
27	10/9/2015	6	21:04	1	6	2	2	0	0
28	10/28/2015	4	12:10	3	1	2	2	0	0
29	10/28/2015	4	13:15	1	1	2	2	0	0
30	10/28/2015	4	14:49	2	1	2	2	0	0
31	11/5/2015	5	16:50	11	3	1	1	0	0
32	11/9/2015	2	9:54	2	1	1	1	0	0
33	11/10/2015	3	14:39	3	1	2	2	0	0
34	12/3/2015	5	8:57	3	1	1	1	0	0
35	12/3/2015	5	13:43	11	1	1	1	1	0
36	12/19/2015	7	14:57	7	1	1	1	0	0
37	12/22/2015	3	17:19	7	6	2	2	0	0
38	12/22/2015	3	23:01	7	6	1	2	0	0
39	1/21/2016	5	19:46	1	6	1	1	0	0
40	5/1/2016	1	11:41	3	1	2	2	0	0
41	5/17/2016	3	13:24	1	1	2	2	0	0
42	5/23/2016	2	10:52	2	1	1	1	0	0
43	6/20/2016	2	15:24	3	1	1	1	1	0
44	7/23/2016	7	10:56	3	1	1	1	0	0
45	7/29/2016	6	12:08	3	1	1	1	0	0
46	9/9/2016	6	13:10	3	1	1	1	0	0
47	9/13/2016	3	15:38	7	1	1	1	0	0
48	9/29/2016	5	19:18	2	6	2	2	0	0
49	10/2/2016	1	13:59	3	NV	NV	NV	0	0
50	10/23/2016	1	15:55	3	1	1	1	3	0

Day

1-	Sun	5	Thur
2-	Mon	6	Fri
3-	Tue	7	Sat
4-	Wed	*	Holiday

Light Condition

1- Daylight
2- Dawn
3- Dusk
4- Dark (St. Lights off)
5- Dark (No St. Lights)
6- Dark (St Lights On, Cont.)
7- Dark (St Lights On, Spot)

Crash Type

1- Same Direction (Rear-end)
2- Same Direction (Sideswipe)
3- Right Angle
4- Opposite Direction (Head-on/ Angular)
5- Opposite Direction (Sideswipe)
6- Parked Vehicle
7- Left Turn / U Turn
8- Backing
9- Encroachment
10- Overturned
11- Fixed Object
12- Animal
13- Pedestrian
14- Pedalcycle
15- Non-fixed Object
16- Railcar-vehicle
99- Other

Environmental Conditions

1-	Clear	6-	Sleet/Hail/Freezing Rain
2-	Rain	7-	Blowing Snow
3-	Snow	8-	Blowing Sand/Dirt
4-	Fog/Smog/Smoke	9-	Severe Crosswinds
5-	Overcast		

Road Surface Conditions

1-	Dry	5-	Slush
2-	Wet	6-	Water (Standing/ Moving
3-	Snowy	7-	Sand, Mud, Dirt
4-	Icy	8-	Oil

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019

● **Fatality**
■ **F.O.**

#	DATE	DAY	TIME	CT	LC	EC	RS	I	F
51	11/9/2016	4	12:46	3	1	2	2	0	0
52	11/17/2016	5	13:04	1	1	1	1	0	0
53	2/17/2017	6	15:05	3	1	1	1	1	0
54	3/19/2017	1	12:41	3	1	1	1	0	0
55	4/18/2017	3	18:31	3	1	1	1	1	0
56	5/8/2017	2	8:55	3	1	1	1	1	0
57	5/23/2017	3	7:30	7	1	1	1	0	0
58	6/22/2017	5	17:28	2	1	1	1	0	0
59	8/18/2017	6	9:42	3	1	1	1	0	0
60	9/5/2017	3	8:08	3	1	1	1	0	0
61	9/6/2017	4	7:30	7	1	2	2	1	0
62	10/27/2017	6	17:13	1	1	1	1	0	0
63	11/30/2017	5	8:10	8	1	1	1	0	0
64	1/27/2018	7	10:45	3	1	1	1	0	0
65	3/2/2018	6	8:05	3	1	6	2	1	0
66	3/11/2018	1	15:31	7	1	1	1	2	0
67	4/23/2018	2	7:33	2	1	1	1	0	0
68	5/16/2018	4	10:31	1	1	2	2	0	0
69	5/20/2018	1	18:52	1	1	1	2	0	0
70	6/4/2018	2	18:41	1	1	1	1	0	0
71	6/5/2018	3	14:18	3	1	1	1	1	0
72	7/16/2018	2	17:06	7	1	1	1	1	0
73	7/27/2018	6	22:32	2	6	1	1	0	0
74	8/27/2018	2	13:59	1	1	1	1	0	0
75	10/10/2018	4	10:34	7	1	1	1	1	0

Day

1-	Sun	5	Thur
2-	Mon	6	Fri
3-	Tue	7	Sat
4-	Wed	*	Holiday

Light Condition

1- Daylight
2- Dawn
3- Dusk
4- Dark (St. Lights off)
5- Dark (No St. Lights)
6- Dark (St Lights On, Cont.)
7- Dark (St Lights On, Spot)

Crash Type

1-	Same Direction (Rear-end)		
2-	Same Direction (Sideswipe)		
3-	Right Angle		
4-	Opposite Direction (Head-on/ Angular)		
5-	Opposite Direction (Sideswipe)		
6-	Parked Vehicle		
7-	Left Turn / U Turn		
8-	Backing	13-	Pedestrian
9-	Encroachment	14-	Pedalcycle
10-	Overturned	15-	Non-fixed Object
11-	Fixed Object	16-	Railcar-vehicle
12-	Animal	99-	Other

Environmental Conditions

1-	Clear	6-	Sleet/Hail/Freezing Rain
2-	Rain	7-	Blowing Snow
3-	Snow	8-	Blowing Sand/Dirt
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Road Surface Conditions

1-	Dry	5-	Slush
2-	Wet	6-	Water (Standing/ Moving
3-	Snowy	7-	Sand, Mud, Dirt
4-	Icy	8-	Oil

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019

● **Fatality**
■ **F.O.**

#	DATE	DAY	TIME	CT	LC	EC	RS	I	F
76	12/4/2018	3	12:31	3	1	1	1	0	0
77	12/5/2018	4	17:37	13	1	3	2	1	0
78	12/11/2018	3	20:30	1	7	1	1	0	0
79	12/25/2018	3	15:04	1	1	1	1	0	0
80	1/6/2019	1	15:47	3	1	1	1	0	0
81	1/9/2019	4	9:56	2	1	1	1	1	0
82	1/15/2019	3	6:23	1	2	1	1	1	0
83	1/17/2019	5	8:05	1	1	1	1	0	0
84	2/4/2019	2	8:28	7	1	1	1	0	0
85	3/6/2019	4	11:15	2	1	1	1	0	0
86	3/29/2019	6	17:13	1	1	1	1	0	0
87	4/29/2019	2	17:09	3	1	1	1	0	0
88	8/29/2019	5	21:00	5	6	1	1	0	0
89	9/20/2019	6	14:21	1	1	1	1	0	0
90	10/3/2019	5	13:12	3	1	2	2	0	0
91	11/5/2019	3	7:00	3	1	1	1	1	0
92	11/28/2019	5	15:20	1	1	1	1	1	0
93									
94									
95									
96									
97									
98									
99									
100									

Day

1-	Sun	5	Thur
2-	Mon	6	Fri
3-	Tue	7	Sat
4-	Wed	*	Holiday

Light Condition

1- Daylight
2- Dawn
3- Dusk
4- Dark (St. Lights off)
5- Dark (No St. Lights)
6- Dark (St Lights On, Cont.)
7- Dark (St Lights On, Spot)

Crash Type

1- Same Direction (Rear-end)
2- Same Direction (Sideswipe)
3- Right Angle
4- Opposite Direction (Head-on/ Angular)
5- Opposite Direction (Sideswipe)
6- Parked Vehicle
7- Left Turn / U Turn
8- Backing
9- Encroachment
10- Overturned
11- Fixed Object
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Environmental Conditions

1-	Clear	6-	Sleet/Hail/Freezing Rain
2-	Rain	7-	Blowing Snow
3-	Snow	8-	Blowing Sand/Dirt
4-	Fog/Smog/Smoke	9-	Severe Crosswinds
5-	Overcast		

Road Surface Conditions

1-	Dry	5-	Slush
2-	Wet	6-	Water (Standing/ Moving
3-	Snowy	7-	Sand, Mud, Dirt
4-	Icy	8-	Oil

APPENDIX E

Aerial Plans & Photographs

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD

PROJECT LOCATION MAP

VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

Project Name: Concept Development Intersection Study for CR 670 and CR 673

Photo: P-01

Date: 4/27/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	CR 670 (Burnt Mill Road) looking north. Upgrade existing traffic signal equipment, pedestrian facilities, and striping per MUTCD and NJDOT standards; upgrade curb ramps to meet ADA standards

Photo: P-02

Date: 4/27/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	CR 673 (White Horse Road) looking north. Upgrade existing traffic signal equipment, pedestrian facilities, and striping per MUTCD and NJDOT standards; upgrade curb ramps to meet ADA standards

Project Name: Concept Development Intersection Study for CR 670 and CR 673

Photo: P-03

Date: 4/27/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	Abandoned commercial building at Southeast corner of the intersection

Photo: P-04

Date: 11/16/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	CR 670 (Burnt Mill Road) looking north.

Project Name: Concept Development Intersection Study for CR 670 and CR 673

Photo: P-05

Date: 4/27/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	Commercial building (Atlantic Coin and Jewelry Exchange) at Northwest corner of the intersection

Photo: P-06

Date: 11/16/22

Location:	CR 673 (White Horse Road) – Looking Southbound
Description:	CR 673 (White Horse Road) looking south

Project Name: Concept Development Intersection Study for CR 670 and CR 673

Photo: P-07

Date: 4/27/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	Carwash service at Northeast corner of intersection

Photo: P-08

Date: 4/27/22

Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	White Horse Road (CR 673) looking south

Project Name: Concept Development Intersection Study for CR 670 and CR 673

Photo: P-09

Date: 11/16/22

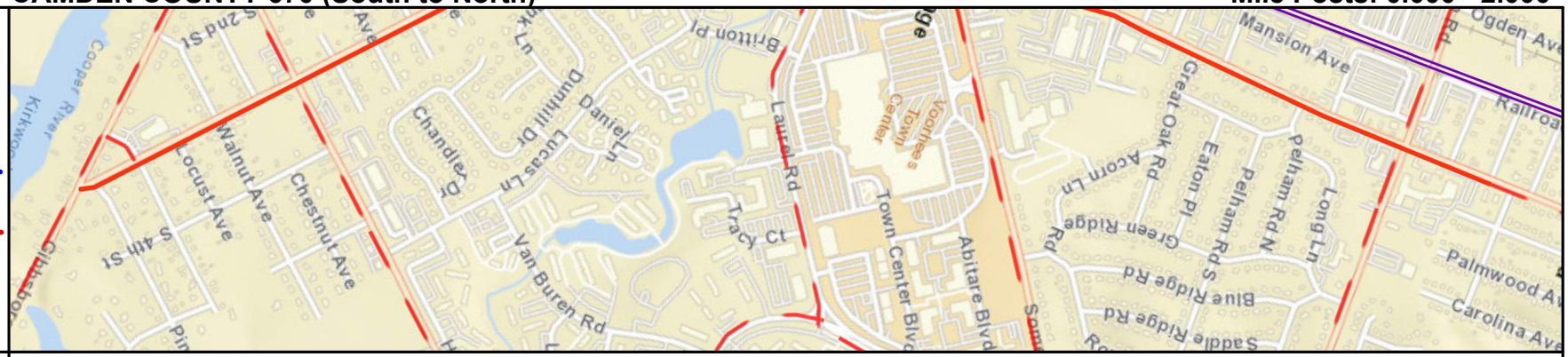
Location:	CR 670 (Burnt Mill Road) and CR 673 (White Horse Road) Intersection
Description:	Intersection looking at Super WAWA on southwest corner of intersection.

APPENDIX F

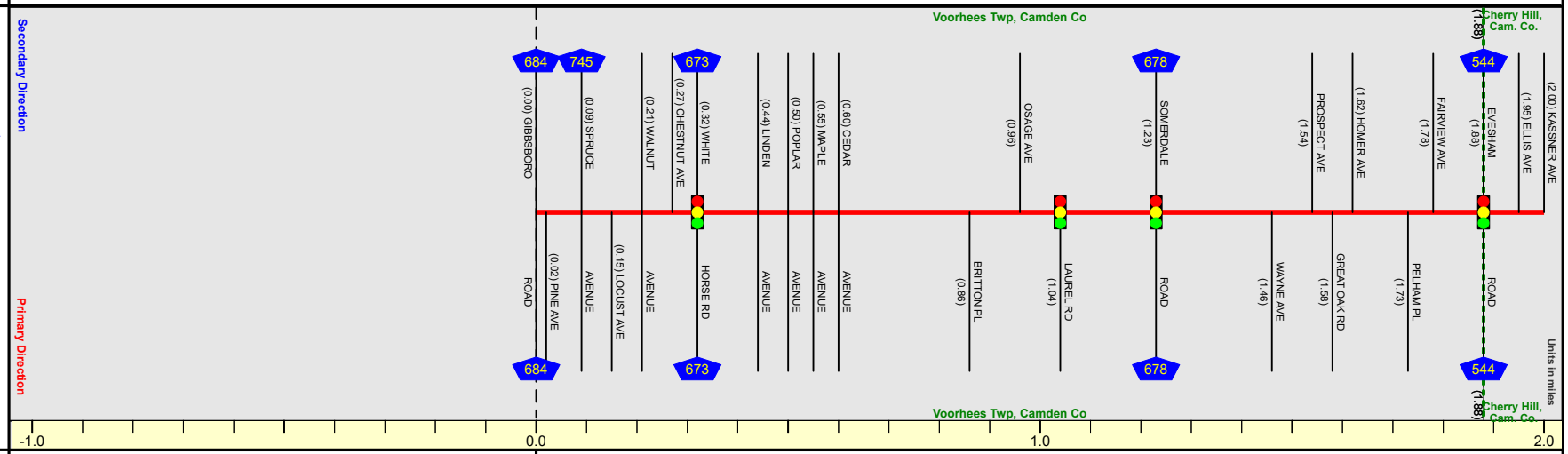
Straight Line Diagrams

CAMDEN COUNTY 670 (South to North)

Mile Posts: 0.000 - 2.000



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



Street Name	Burnt Mill Road
Jurisdiction	County
Functional Class	Urban Minor Arterial
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	30 (0.00) 35 (0.27) 25 (1.23)
Number of Lanes	2 (0.00) 3 (1.23) 2 (1.88)
Med. Type	None
Med. Width	
Pavement	24 (0.00) 36 (0.27) 48 (1.23) 36 (1.54) 30 (1.88)
Shoulder	3 (0.00) 8 (0.27) 6 (1.23) 18 (1.54)
Traffic Volume	13,311 (2018) (1.88)
Traffic Sta. ID	7-9-406 (1.88)
Structure No.	
Enlarged Views	

Begin Camden County 670 MP=0.00

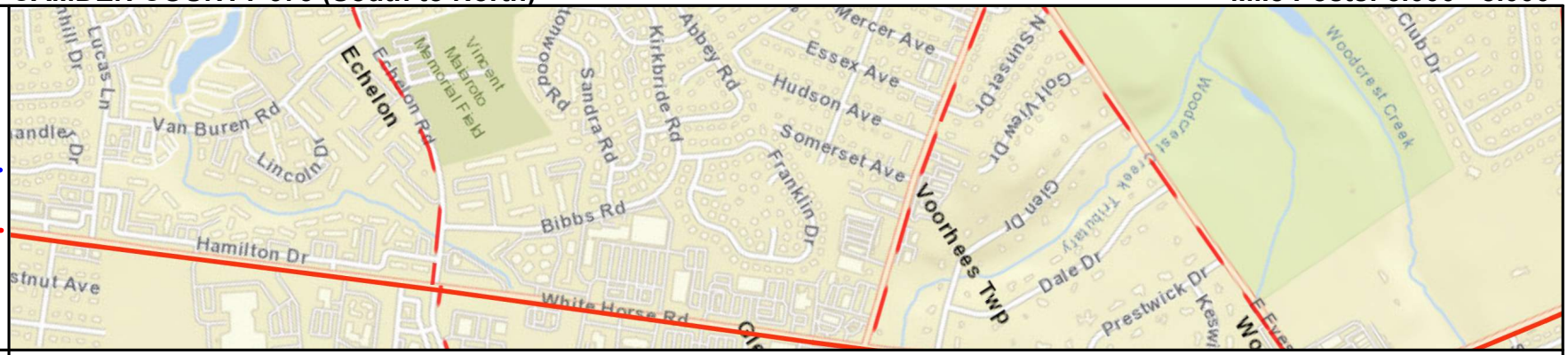
SRI = 04000670__

Date last inventoried: August 2022

Page Created: June, 2020

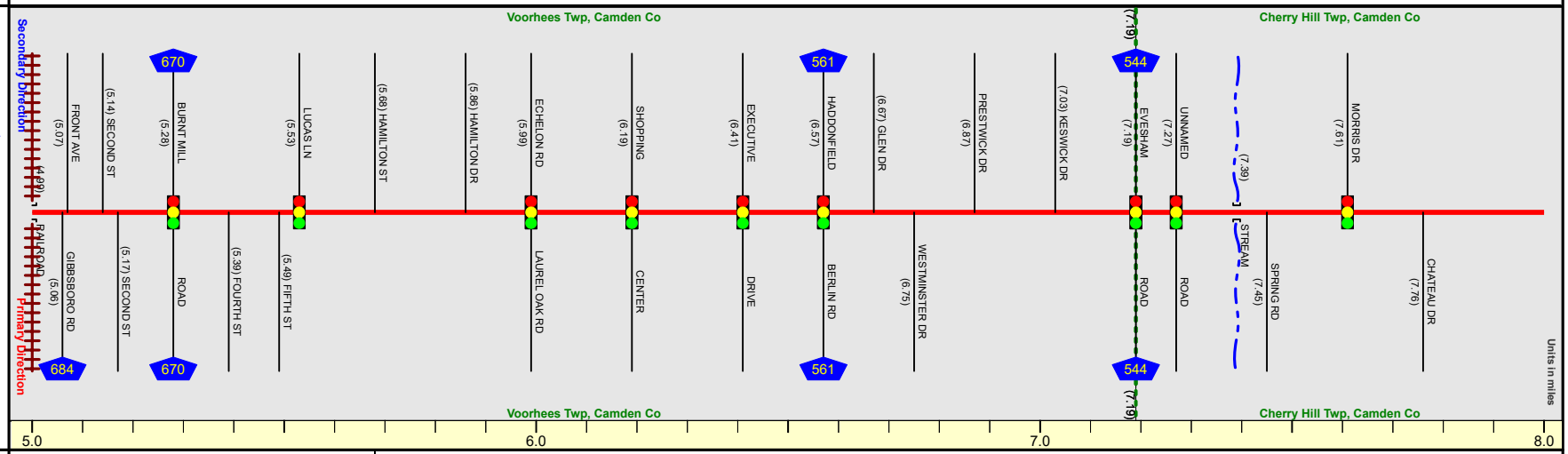
CAMDEN COUNTY 673 (South to North)

Mile Posts: 5.000 - 8.000



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	

Interstate Route 287 | US Route 22 | NJ Route 33 | County Road 689 | Interchange Number 2 | Grade Separated Interchange | Traffic Signal | Traffic Monitoring Sites WIM AVC VOL | Road Underpass | Road Overpass | Dyn Msg Sign DMS



Street Name	Laurel Road | White Horse Road
Jurisdiction	County
Functional Class	Urban Minor Arterial
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	25 | 40
Number of Lanes	4 | 3 | 2
Med. Type	None
Med. Width	
Pavement	36 | 60 | 48 | 60 | 40 | 38 | 24
Shoulder	4 | 6 | 2
Traffic Volume	17,982 (2019)
Traffic Sta. ID	7n5b701
Structure No.	
Enlarged Views	

SRI = 04000673__

Date last inventoried: June 2011

Page Created: June, 2020

APPENDIX G

Traffic Data

Growth Rate
1.00%

CR 673 (White Horse Rd)

	Year	AADT
	2017	
	2018	
	2019	
*	2020	18,753
	2021	18,941
**	2022	19,130
1	2023	19,321
2	2024	19,514
3	2025	19,710
4	2026	19,907
5	2027	20,106
6	2028	20,307
7	2029	20,510
8	2030	20,715
9	2031	20,922
10	2032	21,131
11	2033	21,343
12	2034	21,556
13	2035	21,772
14	2036	21,989
15	2037	22,209
16	2038	22,431
17	2039	22,656
18	2040	22,882
19	2041	23,111
20	2042	**23,342**

CR 670 (Burnt Mill Rd)

	Year	AADT
	2017	3,315
	2018	3,348
	2019	3,382
	2020	3,415
	2021	3,450
**	2022	3,484
1	2023	3,519
2	2024	3,554
3	2025	3,590
4	2026	3,626
5	2027	3,662
6	2028	3,698
7	2029	3,735
8	2030	3,773
9	2031	3,811
10	2032	3,849
11	2033	3,887
12	2034	3,926
13	2035	3,965
14	2036	4,005
15	2037	4,045
16	2038	4,085
17	2039	4,126
18	2040	4,167
19	2041	4,209
20	2042	**4,251**

* note, pandemic years late 2019-2021

** traffic year pre-Wawa

Johnson, Mirmiran and Thompson
72 Loveton Circle

Sparks, Maryland, United States 21152
410-316-2278 kfong2@jmt.com

Count Name: 21-03638 DVRPC CR670 Burnt Mill and Whitehorse Rd
Site Code:
Start Date: 01/10/2023

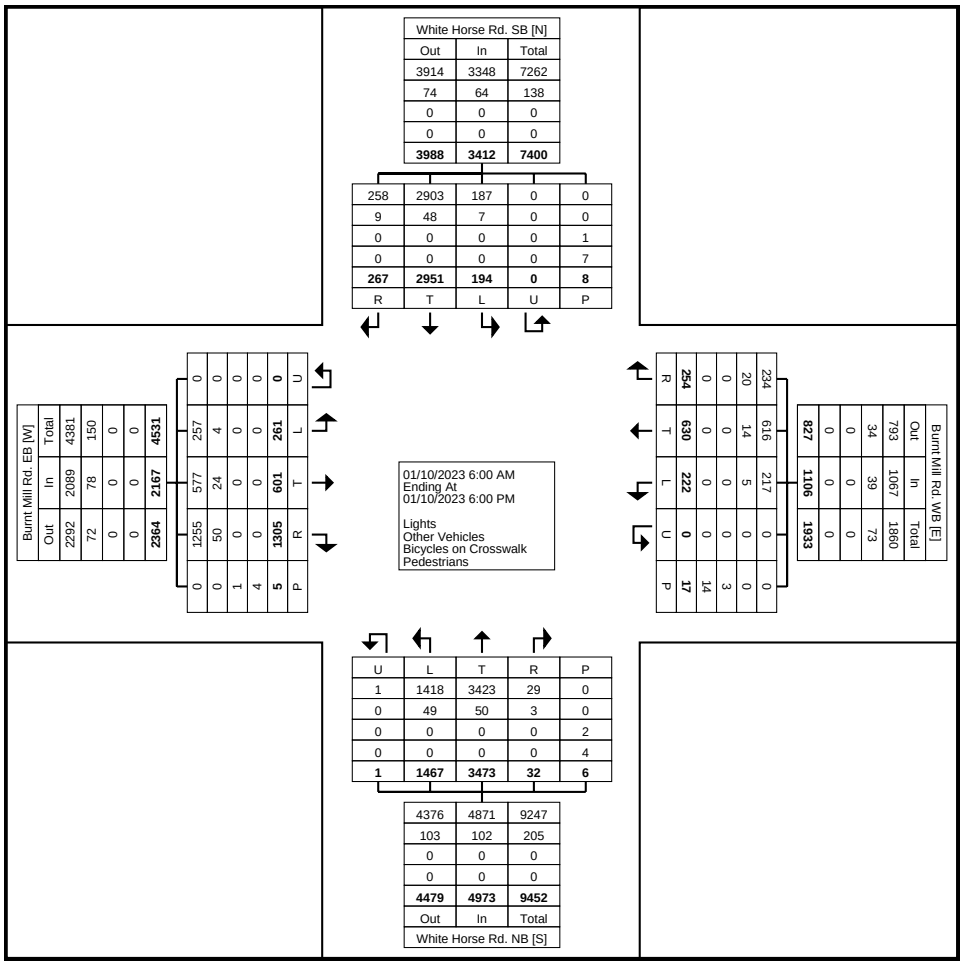
Turning Movement Data

Start Time	White Horse Rd. SB Southbound							Burnt Mill Rd. WB Westbound							White Horse Rd. NB Northbound							Burnt Mill Rd. EB Eastbound							
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Int. Total
6:00 AM	0	1	25	3	0	0	29	0	1	10	4	0	0	15	1	0	52	27	0	0	80	5	7	2	0	0	0	14	138
6:15 AM	1	0	42	4	0	0	47	3	0	17	2	0	0	22	1	0	75	36	0	0	112	10	5	6	1	0	0	22	203
6:30 AM	0	1	46	2	0	0	49	3	1	21	4	0	0	29	0	0	104	63	0	0	167	8	13	10	1	0	0	32	277
6:45 AM	2	1	60	8	0	0	71	7	0	26	7	0	0	40	3	0	123	51	0	0	177	15	14	10	5	0	0	44	332
Hourly Total	3	3	173	17	0	0	196	13	2	74	17	0	0	106	5	0	354	177	0	0	536	38	39	28	7	0	0	112	950
7:00 AM	0	0	72	10	0	0	82	7	3	29	14	0	0	53	0	0	148	65	0	0	213	26	8	6	7	0	1	47	395
7:15 AM	3	0	86	3	0	0	92	8	3	33	16	0	0	60	0	0	187	74	0	0	261	29	12	9	5	0	0	55	468
7:30 AM	5	0	92	6	0	2	103	5	3	24	11	0	2	43	3	0	164	98	0	0	265	38	11	18	8	0	1	75	486
7:45 AM	9	0	90	2	0	0	101	11	1	40	14	0	0	66	0	0	209	89	0	0	298	26	17	19	10	0	0	72	537
Hourly Total	17	0	340	21	0	2	378	31	10	126	55	0	2	222	3	0	708	326	0	0	1037	119	48	52	30	0	2	249	1886
8:00 AM	6	2	113	6	0	1	127	12	3	40	9	0	2	64	1	0	175	104	0	0	280	19	19	22	11	0	0	71	542
8:15 AM	2	0	103	7	0	1	112	9	2	36	8	0	2	55	1	0	178	96	0	0	275	31	13	18	11	0	0	73	515
8:30 AM	3	6	121	7	0	0	137	11	4	26	18	0	0	59	1	0	205	85	0	0	291	21	16	20	9	0	0	66	553
8:45 AM	7	1	94	6	0	0	108	11	1	28	9	0	0	49	0	0	190	84	0	2	274	32	25	25	11	0	2	93	524
Hourly Total	18	9	431	26	0	2	484	43	10	130	44	0	4	227	3	0	748	369	0	2	1120	103	73	85	42	0	2	303	2134
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	12	2	149	10	0	0	173	8	2	15	7	0	0	32	1	0	128	53	0	0	182	59	14	27	16	0	0	116	503
3:15 PM	16	4	161	6	0	0	187	8	3	23	13	0	1	47	0	0	132	55	0	0	187	46	19	43	10	0	0	118	539
3:30 PM	15	3	167	17	0	0	202	9	3	27	11	0	1	50	0	0	137	39	0	0	176	38	14	27	25	0	0	104	532
3:45 PM	17	4	161	8	0	0	190	16	0	27	8	0	1	51	1	0	140	54	0	0	195	50	21	37	16	0	0	124	560
Hourly Total	60	13	638	41	0	0	752	41	8	92	39	0	3	180	2	0	537	201	0	0	740	193	68	134	67	0	0	462	2134
4:00 PM	13	5	152	8	0	0	178	12	3	20	12	0	0	47	3	0	147	46	1	0	197	74	18	33	10	0	0	135	557
4:15 PM	15	12	188	13	0	0	228	10	0	22	3	0	0	35	3	0	133	57	0	1	193	59	12	37	15	0	0	123	579
4:30 PM	14	2	175	12	0	1	203	6	3	29	7	0	1	45	1	3	136	54	0	0	194	59	19	48	11	0	0	137	579
4:45 PM	15	5	161	8	0	0	189	5	3	23	13	0	1	44	0	1	128	55	0	1	184	67	14	27	14	0	0	122	539
Hourly Total	57	24	676	41	0	1	798	33	9	94	35	0	2	171	7	4	544	212	1	2	768	259	63	145	50	0	0	517	2254
5:00 PM	12	1	178	16	0	1	207	13	1	27	8	0	1	49	2	0	123	39	0	1	164	86	14	49	19	0	0	168	588
5:15 PM	14	9	177	7	0	0	207	12	4	30	9	0	1	55	3	1	166	46	0	0	216	72	4	38	14	0	0	128	606
5:30 PM	11	0	188	11	0	0	210	13	3	36	8	0	1	60	2	0	150	56	0	0	208	49	13	42	17	0	0	121	599
5:45 PM	10	6	150	14	0	2	180	7	1	21	7	0	3	36	0	0	143	41	0	1	184	57	7	28	15	0	1	107	507
Hourly Total	47	16	693	48	0	3	804	45	9	114	32	0	6	200	7	1	582	182	0	2	772	264	38	157	65	0	1	524	2300
Grand Total	202	65	2951	194	0	8	3412	206	48	630	222	0	17	1106	27	5	3473	1467	1	6	4973	976	329	601	261	0	5	2167	11658
Approach %	5.9	1.9	86.5	5.7	0.0	-	-	18.6	4.3	57.0	20.1	0.0	-	-	0.5	0.1	69.8	29.5	0.0	-	-	45.0	15.2	27.7	12.0	0.0	-	-	-
Total %	1.7	0.6	25.3	1.7	0.0	-	29.3	1.8	0.4	5.4	1.9	0.0	-	9.5	0.2	0.0	29.8	12.6	0.0	-	42.7	8.4	2.8	5.2	2.2	0.0	-	18.6	-
Lights	194	64	2903	187	0	-	3348	193	41	616	217	0	-	1067	24	5	3423	1418	1	-	4871	934	321	577	257	0	-	2089	11375
% Lights	96.0	98.5	98.4	96.4	-	-	98.1	93.7	85.4	97.8	97.7	-	-	96.5	88.9	100.0	98.6	96.7	100.0	-	97.9	95.7	97.6	96.0	98.5	-	-	96.4	97.6
Other Vehicles	8	1	48	7	0	-	64	13	7	14	5	0	-	39	3	0	50	49	0	-	102	42	8	24	4	0	-	78	283
% Other Vehicles	4.0	1.5	1.6	3.6	-	-	1.9	6.3	14.6	2.2	2.3	-	-	3.5	11.1	0.0	1.4	3.3	0.0	-	2.1	4.3	2.4	4.0	1.5	-	-	3.6	2.4

Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	12.5	-	-	-	-	-	-	17.6	-	-	-	-	-	-	33.3	-	-	-	-	-	-	20.0	-	-	-	-
Pedestrians	-	-	-	-	-	7	-	-	-	-	-	-	14	-	-	-	-	-	-	4	-	-	-	-	-	-	4	-	-	-	-
% Pedestrians	-	-	-	-	-	87.5	-	-	-	-	-	-	82.4	-	-	-	-	-	-	66.7	-	-	-	-	-	-	80.0	-	-	-	-

Johnson, Mirmiran and Thompson
72 Loveton Circle

Sparks, Maryland, United States 21152
410-316-2278 kfong2@jmt.com



Turning Movement Data Plot

Johnson, Mirmiran and Thompson
72 Loveton Circle

Sparks, Maryland, United States 21152
410-316-2278 kfong2@jmt.com

Count Name: 21-03638 DVRPC CR670 Burnt Mill and Whitehorse Rd
Site Code:
Start Date: 01/10/2023

Turning Movement Peak Hour Data (7:45 AM)

Start Time	White Horse Rd. SB Southbound							Burnt Mill Rd. WB Westbound							White Horse Rd. NB Northbound							Burnt Mill Rd. EB Eastbound							
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Int. Total
7:45 AM	9	0	90	2	0	0	101	11	1	40	14	0	0	66	0	0	209	89	0	0	298	26	17	19	10	0	0	72	537
8:00 AM	6	2	113	6	0	1	127	12	3	40	9	0	2	64	1	0	175	104	0	0	280	19	19	22	11	0	0	71	542
8:15 AM	2	0	103	7	0	1	112	9	2	36	8	0	2	55	1	0	178	96	0	0	275	31	13	18	11	0	0	73	515
8:30 AM	3	6	121	7	0	0	137	11	4	26	18	0	0	59	1	0	205	85	0	0	291	21	16	20	9	0	0	66	553
Total	20	8	427	22	0	2	477	43	10	142	49	0	4	244	3	0	767	374	0	0	1144	97	65	79	41	0	0	282	2147
Approach %	4.2	1.7	89.5	4.6	0.0	-	-	17.6	4.1	58.2	20.1	0.0	-	-	0.3	0.0	67.0	32.7	0.0	-	-	34.4	23.0	28.0	14.5	0.0	-	-	-
Total %	0.9	0.4	19.9	1.0	0.0	-	22.2	2.0	0.5	6.6	2.3	0.0	-	11.4	0.1	0.0	35.7	17.4	0.0	-	53.3	4.5	3.0	3.7	1.9	0.0	-	13.1	-
PHF	0.556	0.333	0.882	0.786	0.000	-	0.870	0.896	0.625	0.888	0.681	0.000	-	0.924	0.750	0.000	0.917	0.899	0.000	-	0.960	0.782	0.855	0.898	0.932	0.000	-	0.966	0.971
Lights	19	8	412	21	0	-	460	38	7	139	47	0	-	231	2	0	755	363	0	-	1120	86	64	69	39	0	-	258	2069
% Lights	95.0	100.0	96.5	95.5	-	-	96.4	88.4	70.0	97.9	95.9	-	-	94.7	66.7	-	98.4	97.1	-	-	97.9	88.7	98.5	87.3	95.1	-	-	91.5	96.4
Other Vehicles	1	0	15	1	0	-	17	5	3	3	2	0	-	13	1	0	12	11	0	-	24	11	1	10	2	0	-	24	78
% Other Vehicles	5.0	0.0	3.5	4.5	-	-	3.6	11.6	30.0	2.1	4.1	-	-	5.3	33.3	-	1.6	2.9	-	-	2.1	11.3	1.5	12.7	4.9	-	-	8.5	3.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	25.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	-	3	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	75.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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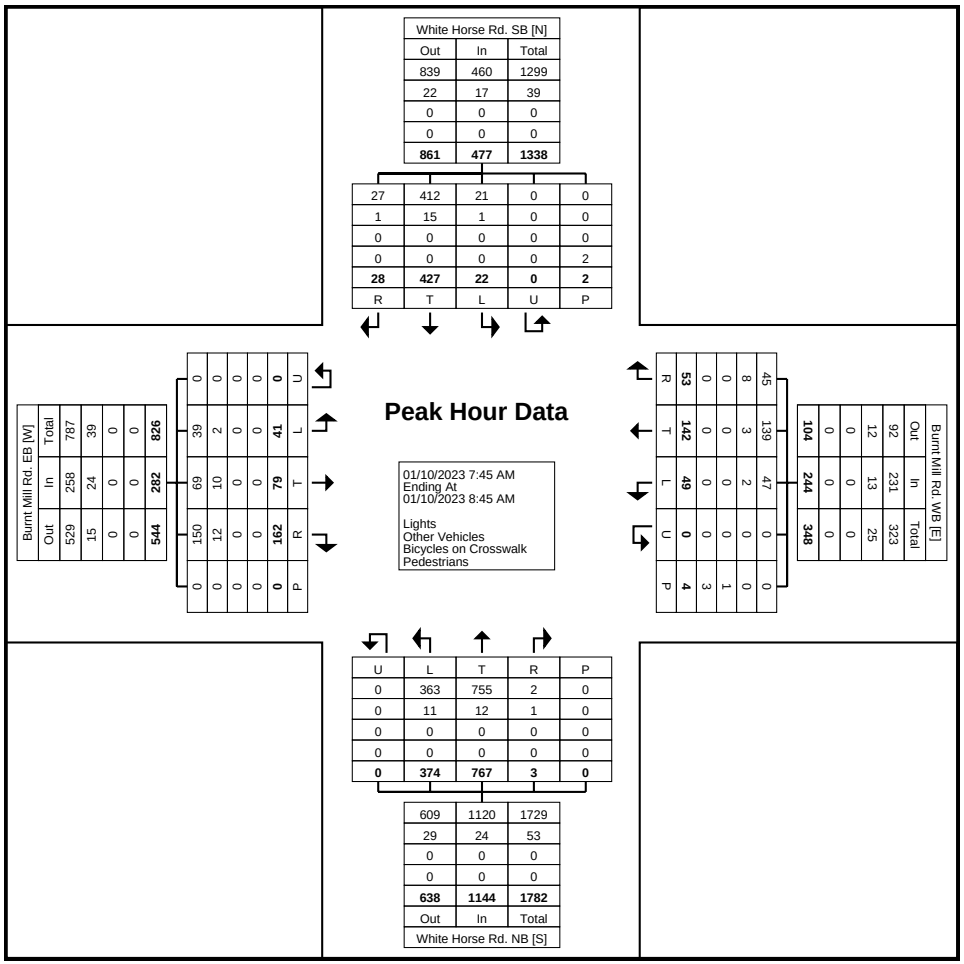

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Start Time	White Horse Rd. SB Southbound							Burnt Mill Rd. WB Westbound							White Horse Rd. NB Northbound							Burnt Mill Rd. EB Eastbound							
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Int. Total
4:45 PM	15	5	161	8	0	0	189	5	3	23	13	0	1	44	0	1	128	55	0	1	184	67	14	27	14	0	0	122	539
5:00 PM	12	1	178	16	0	1	207	13	1	27	8	0	1	49	2	0	123	39	0	1	164	86	14	49	19	0	0	168	588
5:15 PM	14	9	177	7	0	0	207	12	4	30	9	0	1	55	3	1	166	46	0	0	216	72	4	38	14	0	0	128	606
5:30 PM	11	0	188	11	0	0	210	13	3	36	8	0	1	60	2	0	150	56	0	0	208	49	13	42	17	0	0	121	599
Total	52	15	704	42	0	1	813	43	11	116	38	0	4	208	7	2	567	196	0	2	772	274	45	156	64	0	0	539	2332
Approach %	6.4	1.8	86.6	5.2	0.0	-	-	20.7	5.3	55.8	18.3	0.0	-	-	0.9	0.3	73.4	25.4	0.0	-	-	50.8	8.3	28.9	11.9	0.0	-	-	-
Total %	2.2	0.6	30.2	1.8	0.0	-	34.9	1.8	0.5	5.0	1.6	0.0	-	8.9	0.3	0.1	24.3	8.4	0.0	-	33.1	11.7	1.9	6.7	2.7	0.0	-	23.1	-
PHF	0.867	0.417	0.936	0.656	0.000	-	0.968	0.827	0.688	0.806	0.731	0.000	-	0.867	0.583	0.500	0.854	0.875	0.000	-	0.894	0.797	0.804	0.796	0.842	0.000	-	0.802	0.962
Lights	51	14	696	42	0	-	803	43	11	114	38	0	-	206	7	2	560	190	0	-	759	269	44	155	64	0	-	532	2300
% Lights	98.1	93.3	98.9	100.0	-	-	98.8	100.0	100.0	98.3	100.0	-	-	99.0	100.0	100.0	98.8	96.9	-	-	98.3	98.2	97.8	99.4	100.0	-	-	98.7	98.6
Other Vehicles	1	1	8	0	0	-	10	0	0	2	0	0	-	2	0	0	7	6	0	-	13	5	1	1	0	0	-	7	32
% Other Vehicles	1.9	6.7	1.1	0.0	-	-	1.2	0.0	0.0	1.7	0.0	-	-	1.0	0.0	0.0	1.2	3.1	-	-	1.7	1.8	2.2	0.6	0.0	-	-	1.3	1.4
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	50.0	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	-	4	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	50.0	-	-	-	-	-	-	-	-	-

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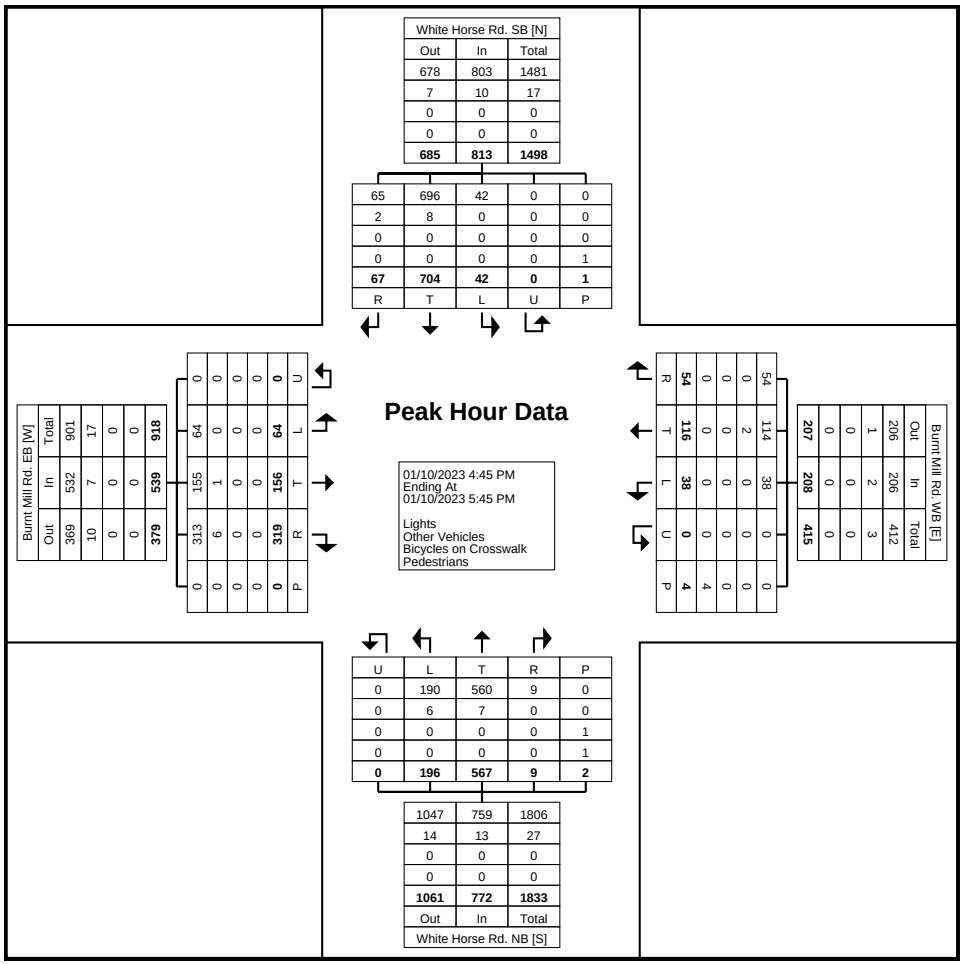


Turning Movement Peak Hour Data Plot (4:45 PM)

APPENDIX H

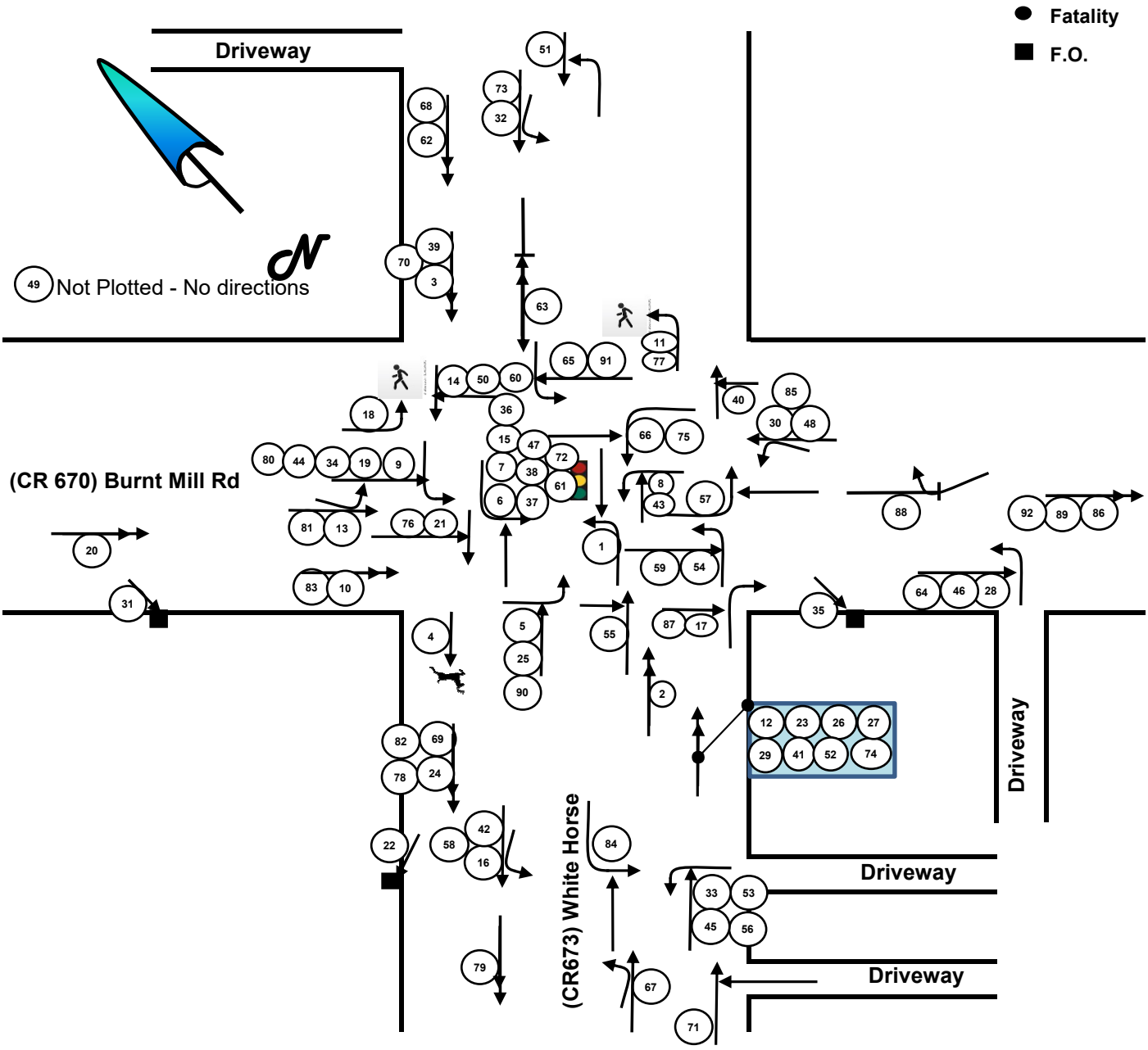
Collision Diagram

Location (CR 670) Burnt Mill Rd & (CR673) White Horse Rd

Municipality Voorhees Twp

Date May 4, 2022 **By** MBO Engineering

Crashes From January 1, 2014 **to** December 31, 2019



Day

1-	Sun	5	Thur
2-	Mon	6	Fri
3-	Tue	7	Sat
4-	Wed	*	Holiday

Light Condition

1-	Daylight
2-	Dawn
3-	Dusk
4-	Dark (St. Lights off)
5-	Dark (No St. Lights)
6-	Dark (St Lights On, Cont.)
7-	Dark (St Lights On, Spot)

Crash Type

1-	Same Direction (Rear-end)		
2-	Same Direction (Sideswipe)		
3-	Right Angle		
4-	Opposite Direction (Head-on/ Angular)		
5-	Opposite Direction (Sideswipe)		
6-	Parked Vehicle		
7-	Left Turn / U Turn		
8-	Backing	13-	Pedestrian
9-	Encroachment	14-	Pedalcycle
10-	Overturned	15-	Non-fixed Object
11-	Fixed Object	16-	Railcar-vehicle
12-	Animal	99-	Other

Environmental Conditions

1-	Clear	6-	Sleet/Hail/Freezing Rain
2-	Rain	7-	Blowing Snow
3-	Snow	8-	Blowing Sand/Dirt
4-	Fog/Smog/Smoke	9-	Severe Crosswinds
5-	Overcast		

Road Surface Conditions

1-	Dry	5-	Slush
2-	Wet	6-	Water (Standing/Moving)
3-	Snowy	7-	Sand, Mud, Dirt
4-	Icy	8-	Oil

APPENDIX I

Environmental Screening and Constraint Map

ENVIRONMENTAL SCREENING REPORT

Intersection of White Horse Road (CR 673) and Burnt Mill Road (CR 670)
Township of Vorhees, Camden County
August 26, 2022

The Delaware Valley Regional Planning Commission (DVRPC) and Camden County are sponsoring improvements to the intersection of White Horse Road (CR 673) and Burnt Mill Road (CR 670). The project will run from mile post 5.15 to 5.37 along CR 673 and from 0.29 to 0.35 along CR 670. These improvements are consistent with Vorhees Township's Master Plan Re-Examination, which has the transportation goals of protecting existing routes from development that exceeds the capacity of the road system and "to utilize the existing major transportation routes as much as possible to avoid the expansion of new major arterial roads.

In anticipation of federal funding assistance via the DVRPC Metropolitan Planning Organization (MPO), the project will be developed in accordance with the NJDOT Local Capital Project Delivery Program. As such, the project sponsors have commissioned Johnson, Mirmiran, & Thompson to prepare a Local Concept Development (LCD) study to identify, develop, and evaluate conceptual alternatives for the proposed intersection improvements of White Horse Road (CR 673) and Burnt Mill Road (CR 670).

This Environmental Screening Report (ESR) has been prepared to identify potential socioeconomic and environmental concerns for consideration during development of the proposed new intersection of White Horse Road (CR 673) and Burnt Mill Road (CR 670). In addition, the environmental screening will assist in determining the appropriate NEPA document to be prepared during the LPE phase and identify anticipated environmental permits and other approvals required during the FD phase. The environmental screening discusses potential opportunities for mitigation, environmental stewardship, context sensitive design solutions, regulatory thresholds, and permitting limitations, as well as potential fatal flaws relevant to environmental resource impacts. This ESR follows the format of NJDOT's Environmental and Landscape Screening Form (October 2017).

The limits of the environmental screening include the White Horse Road (CR 673) corridor and the Burnt Mill Road (CR 670) corridor, and the area within approximately 200 feet of the roadway in all directions.

The environmental screening included a review of existing, pertinent environmental data sources, and a site reconnaissance to confirm field conditions. NJDEP's NJ-GeoWeb served as

the primary background research sources. Other data sources include FEMA mapping, NJDEP Natural Heritage Program (NHP) database, NJDEP Landscape Project 3.3, US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, NJDEP Green Acres Program (GAP) Recreational and Open Space Inventory (ROSI), US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Report, and socioeconomic data sources (e.g., USEPA EJSCREEN and census information) to determine community demographic profiles and potential Environmental Justice issues.

ENVIRONMENTAL CONSTRAINTS/OPPORTUNITIES

CULTURAL RESOURCES

Anticipated Federal funding for the project would require consultation with the NJ Historic Preservation Office (NJHPO) under Section 106 of the National Historic Preservation Act (NHPA) of 1966 if any historical resources were found within the project area.

None of the following are located within the project area: buildings over 50 years old; bridges or culverts over 50 years old, on the national register, NR eligible or SHPO opinion, or on the NJ State register; historic districts on the national register, NR eligible or SHPO opinion, or on the NJ State register; or historic properties on the national register, NR eligible or SHPO opinion, or on the NJ State register. The project area also does not fall within any archeological grids.

SECTION 4(F) PROPERTIES

Section 4(f) of the USDOT Act of 1966 stipulates that FHWA and other USDOT agencies cannot approve the "use" of land from publicly-owned parks, recreation areas, wildlife and waterfowl refuges, or public and private historic sites, unless there is no feasible and prudent avoidance alternative and the project includes all possible planning to minimize harm to the protected resource.

A "use" occurs when land is permanently incorporated into a transportation facility, there is a temporary occupancy of land that is adverse, or there is a "constructive use." A "constructive use" occurs when there are no ROW takes or easements, but proximity impacts are so severe that the Section 4(f) property is substantially impaired.

Parks, Recreation Areas, and Wildlife/Waterfowl Refuges

The current NJDEP Green Acres Program (GAP) ROSI was cross-checked with NJ-GeoWeb tax parcel information to identify GAP encumbered properties in the project study area.

The VFW Lodge (Block 80, Lot 5) is a municipally owned GAP encumbered property located approximately 375 feet southwest of the CR 673 & CR 670 intersection. No other parks, recreation areas, or wildlife/waterfowl refuges were identified in the project study area. Any

impacts to the VFW Lodge property would require further 4(f) evaluation during the design phase.

AIR/NOISE

Air Quality

There are several sensitive receptors within 300 feet of the project limits. Camden County is not a maintenance area for carbon monoxide. It is also an unclassifiable/attainment area for particulate matter (PM) 2.5. Although air quality sensitive receptors are located adjacent to the roadway, no significant air quality impacts are anticipated based on the scope of the proposed project (i.e. intersection improvements). This project will not increase traffic volumes or result in a significant increase in diesel vehicles on the roadway. This project should be exempt from the air quality conformity standards, per Table 2 of 40 CFR 93.126, as a safety project. Standard measures for the abatement of temporary construction air quality impacts should be included in the project's final plans and specifications.

Noise

Sensitive receptors include residencies, places of worship, schools, etc., and where elevated traffic noise can impact the quality of life. While there are sensitive receptors within 200 feet of the project limits, the project will not result in substantial changes to the horizontal or vertical roadway alignment or result in an increase in vehicle operating speeds or roadway capacity. The project qualifies as a Type III project per the NJDOT Traffic Noise Management Policy and is not anticipated to result in significant noise-related impacts. Standard measures for the abatement of temporary construction noise impacts should be included in the project's final plans and specifications.

ECOLOGY

Special Protection Areas

The project area is not located within any of the following special protection areas: Highlands, Coastal Area, Delaware & Raritan Canal, Hackensack Meadowlands, or Pinelands.

Wetlands

NJ-GeoWeb identified wetlands outside of the project study, approximately 200 feet west of the CR 673 and CR 670 intersection. NJ-GeoWeb describes this area as a Deciduous Forested wetland. Additional investigation and coordination with NJDEP would be required to accurately determine the resource value. At this time, according to the Freshwater Wetland Protection Act Rules at N.J.A.C. 7:7A-3.2(g), this wetland is classified with an Intermediate Resource Value and has a 50-foot transition area. A wetland delineation should be completed during preliminary design phase to confirm the presence or absence of wetlands and their transition areas.

Floodplains and Waterbodies

The Cooper River is a freshwater category 2, non-trout (FW2-NT) waterway that runs west of the project area. An unmapped tributary of the river runs under the intersection of CR 673 and CR 670. It is assumed that this tributary is also FW2-NT. This unnamed tributary is not mapped on FEMA FIRM panels or in any State delineated maps. Due to the unavailable mapping, StreamStats was used to determine an approximate drainage area. StreamStats determined that the unnamed tributary has a drainage area of 50 acres or more. A flood hazard area exists along every regulated water with a drainage area 50 acres or greater. Additional investigation would be necessary to determine the potential impacts to regulated state open waters, floodplains and riparian zones. To avoid the need for riparian mitigation, riparian vegetation impacts should be kept below the allowable disturbances provided in Table 11.2 of the NJDEP FHA Rules. The proposed improvements should be designed to minimize and/or avoid impacts to the riparian zone and FHA to the maximum extent practicable.

Stormwater Management

If the proposed project disturbs one or more acres of land and/or increases impervious surface by one-quarter acre or more, the project will be classified as a Major Development and compliance with the Stormwater Management Rules (N.J.A.C. 7:8) will be required.

Threatened & Endangered (T&E) Species

NJ-GeoWeb identified no areas of suitable habitat conditions (Rank 1) within the project area. The nearest areas classified as Rank 1 habitat are within the wetlands outside the project area. Bald Eagle has been identified as foraging within an area near the Copper River, and classified as Rank 4 habitat.

According to the NJDEP's Division of Land Use Regulation Attachment C - Known Locations of Swamp Pink in New Jersey, the Township of Vorhees is listed as a municipality in which Swamp Pink has documented occurrences. According to the NJDEP's Division of Land Use Regulation Attachment D - Known Locations of Bog Turtle in New Jersey, the Township of Vorhees is not listed as a municipality in which Bog Turtle has documented occurrences. Furthermore, according to the New Jersey Municipalities with Hibernation or Maternity Occurrence of Indiana Bat or Northern Long-eared Bat, the Township of Vorhees is not listed as a municipality with occurrences of these bat species.

The NJDEP Natural Heritage Program (NHP) was contacted for information regarding the potential for presence of T&E species on, in the immediate vicinity of, and within one mile of the project site. In correspondence dated August 18, 2022 (attached), the NJDEP NHP identified the following T&E species and Special Concern species potentially associated with the project site:

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches				
Common name	**Scientific name**	**Feature Type**	**Rank**	**Protection Status**
Bald eagle	*Haliaeetus leucocepahlus*	Foraging	4	Federal N/A; State Endangered
Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches				
Common name	**Scientific name**	**Feature Type**	**Rank**	**Protection Status**
Bald eagle	*Haliaeetus leucocepahlus*	Foraging	4	Federal N/A; State Endangered
Red-shouldered hawk	*Buteo lineatus*	Breeding Sighting	4	Federal N/A; State Endangered
Wood thrush	*Hylocichla mustelina*	Breeding Sighting	2	Federal N/A; State Special Concern
Eastern box turtle	*Terrapene carolina carolina*	Occupied Habitat	2	Federal N/A; State Special Concern

Vernal Pool Habitat for Riparian Zone Width Determination Within One Mile of the Project Site Based on Search of Landscape Project 3.3	
Vernal Pool Habitat Type	**Vernal pool habitat ID**
Potential vernal habitat area	1048
Potential vernal habitat area	1063

USFWS IPaC System data was generated for the project on March 8, 2022 (attached). It reported the following species:

Common name	**Scientific name**	**Protection Status**
Northern long-eared bat	*Myotis septentrionalis*	State Threatened
Monarch Butterfly	*Danus plexippus*	State Candidate
Swamp Pink	*Helonias bullata*	State Threatened

No critical habitats, refuge lands, or fish hatcheries were identified within the project area.

T&E Species Summary and Recommendations: Regarding the identified Swamp Pink, suitable conditions for its growth were not identified in the field on the project site, so restrictions related to Swamp Pink are not anticipated.

POTENTIAL PERMITS/ENVIRONMENTAL APPROVALS

Anticipated permits/environmental approvals required during FD include:

- Soil Erosion and Sediment Control Plan Certification from the Camden County Soil Conservation District (SCD)

- Section 4(f) evaluation – may be required if VFW Lodge property is impacted
- Flood Hazard Area Control Act Permit – may be required if the unnamed tributary is found to have an associated Flood Hazard Area
- Freshwater Wetlands Permit – may be required if any wetlands, wetland transition areas, or State open waters are found to be within the project limits

LANDSCAPE ARCHITECTURE

Deforestation

The No Net Loss Reforestation Act (NNL P.L. 2001 Chapter 10 Reforestation) is only applicable to State agencies that clear one-half acre or more of forested area on State lands. Tree removal under the proposed activities will be minimal to provide access and staging for construction only.

Soils

Disturbance of 5,000 square feet (SF) or more is anticipated for the project's proposed activities and will require a Camden County SCD Soil Erosion and Sediment Control Plan Certification. Soil erosion measures such as inlet filters, will be implemented during construction activities.

The entirety of the project area is underlain by the Lower Member of the Kirkwood Formation. This area is associated with acid-producing soils. The dominant soil type within the project study area is MatB – Marlton-Kressen-Urban land, 0 to 5 percent slopes. The other soil types are listed in order of decreasing abundance: KrdA – Kressen sandy loam, 0 to 2 percent slopes; WefB – Westphalia-Buddtown-Urban land complex, 0 to 5 percent slopes; and HodA Holmdel fine sandy loam, 0 to 2 percent slopes. None of the soil types are listed on the NRCS State Hydric Soils List for their respective county.

SOCIOECONOMICS

Potential Environmental Justice impacts are evaluated as part of socioeconomics and must be addressed in all NEPA documents. A Community Profile was developed by JMT, which serves to alert the project team of the characteristics and demographics within the project area. The Community Profile determined that the population in the study was 51% minority, 21% low income households, and 8% linguistically isolated people. This area is above the statewide average in terms of minority population; however, the remaining two categories of the population are both below the statewide average within the project study area.

HAZARDOUS WASTE

NJ-GeoWeb was reviewed to determine the potential for involvement with hazardous materials. According to the NJ-GeoWeb, there are no gas stations, dry cleaners, or auto body shops within the project area. There are two known contaminated sites located within the project area. The first known contaminated site (NJEMS Site ID 649895) is located south of the intersection at 1702 South burnt Mill Road, the existing Wawa property. The site is still active, and the remediation level is C2. The second known contamination site (NJEMS Site ID 23640) is located

east of the intersection at the site of an abandoned Shell Service station. This site also has an underground storage tank. This site is still active and does not have a remediation level listed. Impacts to either of these sites will require further hazardous waste investigation.

ENVIRONMENTAL SCREENING SUMMARY

The Environmental Screening did not identify any "fatal flaws" that would prohibit the advancement of this project. The attached Environmental Constraints Map depicts all major potential constraints and their location relative to the project area. There are no cultural resources, special protection areas, ecological resources, or major landscape resources within the project area or that would be significantly affected by the activities of the proposed project. There are no anticipated impacts to air and noise due to the project. There are no anticipated impacts to sensitive socioeconomic groups, but any potential impacts would be mitigated accordingly. The project area is adjacent to areas of hazardous waste and remediation. Minimal ROW acquisition may occur on these sites, which may require further hazardous waste investigation.

It is anticipated that the project will meet the criteria for a Categorical Exclusion Document (CED) under 23 CFR 771.117 (d)(3) – Bridge rehabilitation, reconstruction or replacement, or the construction of grade separation to replace existing at grade railroad crossings.

NEPA DOCUMENT

Based on the project scope and the likely minimal environmental impacts, the project will qualify for a Categorical Exclusion (CE), specifically 23 CFR 771.117(c)27 – highway safety or traffic operations improvements projects. The CE can likely be certified by the NJDOT per the FHWA/NJDOT 12/8/15 Programmatic CE Agreement if all applicable criteria are met. It is not anticipated that significant socioeconomic or environmental impacts, or other unusual circumstances, will occur that might trigger the need for a NEPA Environmental Assessment or Environmental Impact Statement.

ATTACHMENTS

- Environmental Constraints Map
- NJDEP NHP Report, dated August 18, 2022
- USFWS IPaC Report, dated March 8, 2022

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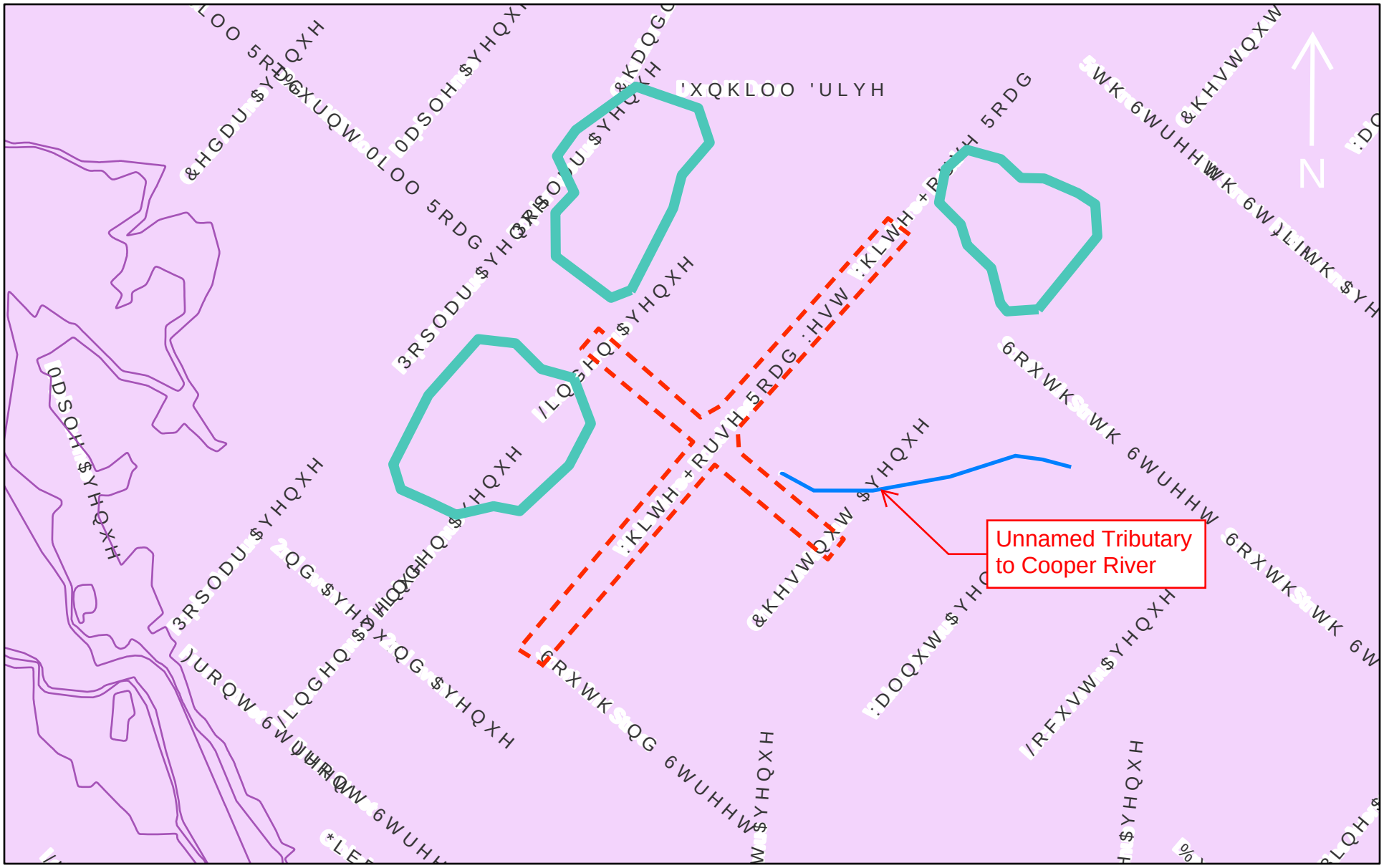

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Department of Environmental Protection
Office of Natural Lands Management
Mail Code 501-04, P.O. Box 420
Trenton, New Jersey 08625-0420
Tel. (609) 984-1339; Fax. (609) 984-1427

Invoice

Date	Invoice #
8/18/2022	25576

Bill to:
Johnson, Mirmiran & Thompson, Inc.
1200 Lenox Drive, Suite 101
Trenton, NJ 08648

Make check payable to:
DEP - Office of Natural Lands Management

Include this invoice with payment & send to:
NJDEP Office of Natural Lands Management
Mail Code 501-04, P.O. Box 420
Trenton, New Jersey 08625-0420

Quantity (hrs.)	Description	Rate (per hr.)	Amount
1	Natural Heritage Database search for locational information of rare species and ecological communities. Project: 22-3907478-25576	$ 70.00	$ 70.00
Miranda McKiernan Project Name: Concept Development Intersection Study for CR 670 and CR 673		**Total**	$ 70.00

State of New Jersey
MAIL CODE 501-04
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE PARKS, FORESTS & HISTORIC SITES
OFFICE OF NATURAL LANDS MANAGEMENT
501 East State Street
P.O. Box 420, Mail Code 501-04
Trenton, NJ 08625-0420
Tel. (609) 984-1339 • Fax (609) 984-0427

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

August 18, 2022

Miranda McKiernan
Johnson, Mirmiran & Thompson, Inc.
1200 Lenox Drive, Suite 101
Trenton, NJ 08648

Re: Concept Development Intersection Study for CR 670 and CR 673
E(x): 352,235.5; N(y): 366,838.8
Voorhees Township, Camden County

Dear Ms. McKiernan:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted in order to make a riparian zone width determination as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species is also covered by the FHACA rules when the records are located within one mile of the project site. One-mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are

provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from https://nj.gov/dep/parksandforests/natural/heritage/database.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements (species and/or ecological communities) or their locations. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 22-3907478-25576

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	No	0 pages included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N

Table 3: Within 1 Mile for Riparian Zone Width Determination
(6 possible reports)

Report Name	**Included**	**Number of Pages**
1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Appplication) - Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Red-shouldered Hawk	Buteo lineatus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
Reptilia								
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3

Vernal Pool Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1048
Potential vernal habitat area	1063

Total number of records: 2

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Camden County, New Jersey

Local office

New Jersey Ecological Services Field Office

(609) 646-9310
(609) 646-0352

4 E. Jimmie Leeds Road, Suite 4
Galloway, NJ 08205

http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found	Threatened

This species only needs to be considered if the following condition applies:

- The specified area occurs within the range of the northern long-eared bat.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Candidate

This species only needs to be considered if the following condition applies:

- The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html).

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
Swamp Pink Helonias bullata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4333	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

Blue-winged Warbler *Vermivora pinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

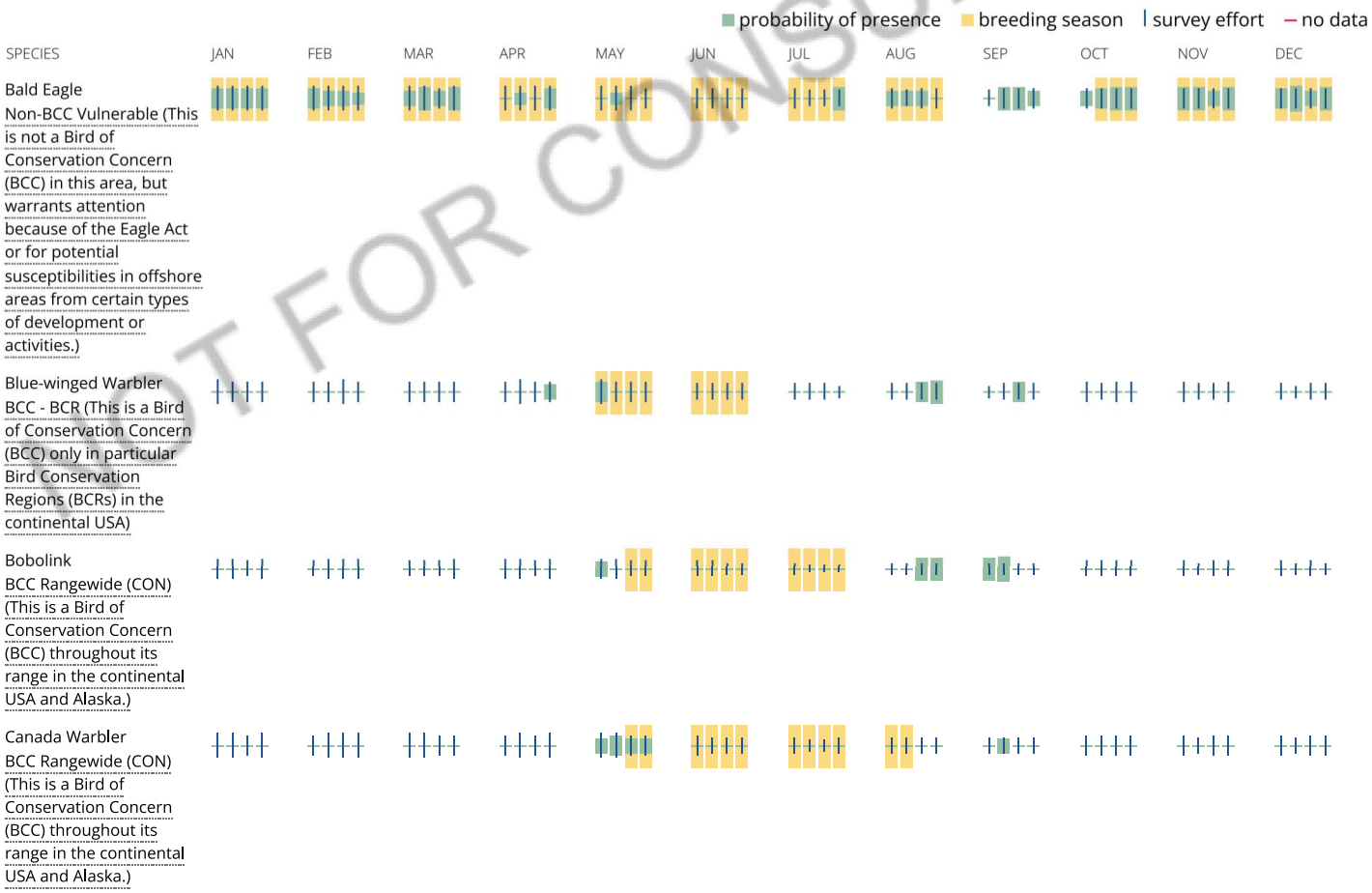
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

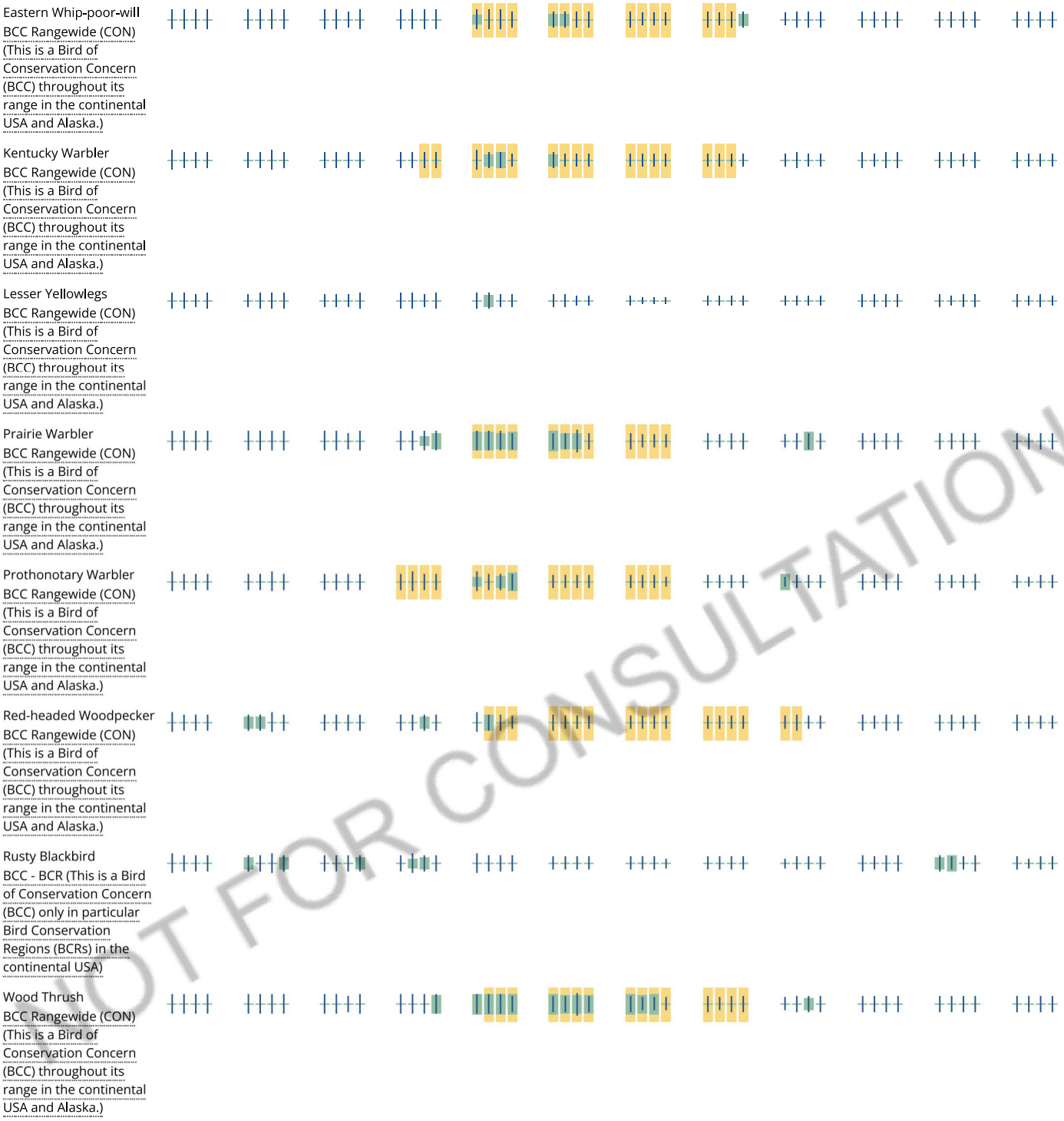
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

State of New Jersey
MAIL CODE 501-04
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE PARKS, FORESTS & HISTORIC SITES
OFFICE OF NATURAL LANDS MANAGEMENT
501 East State Street
P.O. Box 420, Mail Code 501-04
Trenton, NJ 08625-0420
Tel. (609) 984-1339 • Fax (609) 984-0427

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

August 18, 2022

Miranda McKiernan
Johnson, Mirmiran & Thompson, Inc.
1200 Lenox Drive, Suite 101
Trenton, NJ 08648

Re: Concept Development Intersection Study for CR 670 and CR 673
E(x): 352,235.5; N(y): 366,838.8
Voorhees Township, Camden County

Dear Ms. McKiernan:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted in order to make a riparian zone width determination as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species is also covered by the FHACA rules when the records are located within one mile of the project site. One-mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are

provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from https://nj.gov/dep/parksandforests/natural/heritage/database.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements (species and/or ecological communities) or their locations. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 22-3907478-25576

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	No	0 pages included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N

Table 3: Within 1 Mile for Riparian Zone Width Determination
(6 possible reports)

Report Name	**Included**	**Number of Pages**
1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Appplication) - Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Red-shouldered Hawk	Buteo lineatus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
Reptilia								
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3

Vernal Pool Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	1048
Potential vernal habitat area	1063

Total number of records: 2

APPENDIX J

Public Communications

Camden County & DVRPC Route 670 and 673 Stakeholder Meeting
Oct. 21, 2022 | 11:00 AM
MEETING MINUTES

ATTENDEES:

- John Coscia, Jr. – DVRPC
- Kevin Becica – Camden County
- Vibhuti Bhimani – Camden County
- Brian Wirtz – NJDOT Local Aid & Economic Development
- Jack Kluk – Voorhees Township Police Department Traffic Unit
- Joseph Kavano – Voorhees Township Police Department Traffic Unit
- Joseph B. Hale – Voorhees Township Engineering/Code Enforcement
- Paul Dezii – Environmental Resolutions Inc., Voorhees Township Consultant
- Greg Evans – Key Engineers
- George Reilley – Sherwood Real Estate
- Jennifer Wells (resident)
- Brian Derr – JMT
- David Long – JMT
- Brian Strizki – JMT
- Lindsay Klesitz – JMT
- Kush Patel – JMT
- Sophia Fox – Stokes
- Kristina King – Stokes

OPENING REMARKS:

11:00 am: Sophia Fox opened the meeting, greeted attendees, and reviewed the housekeeping items.

11:02 am: Brian Derr began the PowerPoint presentation, which included:

- Project Location and Existing Conditions
- Utilities
- Environmental Impacts
- Purpose and Need
- Alternatives
- Project Schedule

DISCUSSION:

11:13 am: Open Forum began – Sophia invited participants to ask questions.

- Joe Hale, Voorhees Township:

- Noted that this project is a great opportunity for the county to work with the township. Emphasized that if there is anything the project teams needs from Voorhees Township, they are happy to accommodate.
- They know that the bridge is about 95% designed and that the project will benefit residents in the area.
- Kevin Becica, Camden County, asked Joe which alternative he would recommend. He responded that alternative two looks to be the most appropriate given the circumstances and for the property owners, especially with the jughandles going through the backend of the properties. The gas station doesn't have a lot of remediation. It hasn't received a NFA from the state and to tear that up would a nightmare.

- George Riley, property owner of Atlantic Coin & Jewelry Exchange:
  - Talked about not wanting to give up any of his commercial property. His lot is 100 x 125. It currently meets the zoning. If any land is taken and it doesn't meet the zoning, that could be a problem for them in the future.
  - John said that in the future, when the project is further in the concept development process, they will be reaching out to get a resolution of support, if he supports the alternative that is selected. Part of the concept development is to make sure the township is on board.
  - Kevin asked Brian if alternative 2 requires property from the business owner. Brian said that yes, it does have a property take to widen for the bus movements.
  - Brian emphasized that JMT can work with George throughout the process to make sure that he can use his property in the best way.
  - Kevin noted that Camden County and DVRPC work with the property owner to make sure that easements will not negatively affect him.
- Jennifer Wells, local resident
  - Raised her hand but was having computer issues and couldn't unmute.
  - Jennifer provided her contact information so Brian can follow up and reach out to her after the meeting.

CLOSING REMARKS:

11:22 am: Sophia and John thanked everyone for attending and adjourned the meeting. Emphasized that since is this the first stakeholder meeting, if anyone has any questions, they should reach out to the team throughout the duration of the project.

Minutes Prepared by Stokes Creative Group.

Camden County & DVRPC Route 670 and 673 Stakeholder Meeting
Dec. 14, 2022 | 6:00 PM to 7:30 PM

MEETING MINUTES

ATTENDEES:

Name	Organization
John Coscia, Jr	DVRPC
Jim Winckowski	Camden County
Lindsay Klesitz	JMT
Brian Derr	JMT
Kush Patel	JMT
David Long	JMT
Sophia Fox	Stokes
Nicole Pace-Addeo	Stokes
Gibbygirl318@yahoo.com	Resident
Karl G.	Resident
Howard	Resident
George Reilley	Sherwood Real Estate
Leigh	Resident
Mark Wilson	Resident

OPENING REMARKS:

6:00 PM: Sophia Fox opened the meeting, greeted attendees, informed attendees that the meeting was being recorded and it will be posted on the county website following the meeting, and reviewed the housekeeping items.

6:02 PM: Brian Derr began the PowerPoint presentation, which included:

- Project Location and Existing Conditions
- Utilities
- Environmental Impacts
- Purpose and Need
- Alternatives
- Project Schedule

DISCUSSION:

6:12 PM: Open Forum began – Ms. Fox and Mr. Derr invited participants to ask questions to the project team via the chat box or verbally.

- George Reilley, property owner of Atlantic Coin & Jewelry Exchange:
    - He is concerned with what is going to happen on the corner of alternative 2, where there is traffic light and sidewalk. Based on the presentation he is not sure how much of his property will be affected. He would like hard copies of the working drawings.
    - Mr. Reilley is also concerned about the discussion of easements, rather than acquiring land. His current parking lot is at the minimum size allowed. If part of the lot were to be taken, then it would affect the zoning designation for the rest of his property.

Alternative 2 may affect the corner of his property and he emphasized that he cannot give up any of his parking lot.
    - Mr. Reilley also discussed an easement that was recorded 50 years ago of the county taking property to create a sidewalk. It does not mention anything about the traffic light, which is currently on his property.
    - Mr. Derr responded that the team is looking closely at the corner in alternative 2 that would affect his property and considering the easements. There are still more details that need be worked out, but the team will coordinate with Mr. Reilley along the way.
    - John Coscia also added that once the conceptual plans are at a more detailed level, the team will share the hardcopy plans with Mr. Reilley.
- Karl G., resident:
    - Asked if the more favorable alternative is 2.
    - Mr. Derr responded that it is the least impactful alternative. From a safety perspective, roundabouts are the safest option since it makes cars slow down. However, geometrically, the roundabout doesn't work perfectly in alternative 2. But the safety improvements are ideal and the left turn lanes helps the intersection operate better by getting the left turns out of the through lanes.
    - The resident also asked if there has been an uptick in accidents following the upgrades to the Wawa.
    - Mr. Derr responded that we currently don't have the data available, but the team will look into getting that information. There is a possibility that there have been additional accidents.
    - In terms of choosing a preferred alternative, the resident asked if there could be a left turn lane included on Burnt Mill Road for alternative 2 to accommodate the increased volume of Wawa customers? He stated that sometimes he is unable to make a left turn onto White Horse Road because of the additional cars traveling through.
    - Mr. Derr responded that a traffic count has not occurred since the new Wawa opened. The team will look into conducting a new traffic count and researching the impacts of adding the left turn onto Burnt Mill.
- Resident:
    - A resident stated that issue of straight through traffic on Burnt Mill Road being stopped by motorists turning left on west White House Road has not been addressed.
    - Mr. Derr responded that the team will investigate this issue. When the project team preliminary calculated the traffic counts, this was looked into. Overall, the study found that alternative 2 would improve the traffic flow for the intersection, but the team will go back and specifically look into the left turn causing a backup.
    - The resident also asked if a 'trigger' could be installed on northbound Burnt Mill Rd so emergency vehicles get a green light.
    - Mr. Derr responded that the project team is aware that the fire department is on Burnt Mill Road, so that is something that can definitely be considered moving forward.

  - The resident stated that the car wash on White Horse Road creates congestion on high volume days by stopping traffic in the right lane. It would be beneficial if any solution could address this.
  - Mr. Derr thanked the resident for their comment and stated the issue will be looked into.
- Mark Wilson, resident:
  - Asked if there will be a presentation for the public once the plan is finalized.
  - Mr. Coscia responded that following this meeting the team will evaluate all of the questions and comments received from the public. Once a preferred alternative is identified NJTPA subject matter experts will vet the alternative first. Then, there will be another round of local officials, stakeholder and public meetings to present the PPA towards the end of the concept development process.
- Resident:
  - Commented that traffic leaving Wawa backs up on northbound Burnt Mill, sometimes blocking the southbound side, and asked if there was any chance a third lane will be created on northbound Burnt Mill.
  - Mr. Derr responded that this issue may be caused by the signal timing, which the team can look into. And there may be an enforcement issue since motorists should not be blocking southbound vehicles, which will also be looked into.

CLOSING REMARKS:

7:30 PM: Mr. Derr closed the meeting and thanked everyone for attending. Emphasized that the project team really appreciates the comments and questions received from the public and they will all be considered moving forward with the project.

Minutes Prepared by Stokes Creative Group, Inc.

MEMORANDUM

TO: All Meeting Attendees
DATE: May 30, 2023
FROM: Kush Patel, EIT
PROJECT: Concept Development – Intersection of White Horse Road and Burnt Mill Road
JMT JOB NO.: 21-03638-001
RE: Monthly Meeting with DVRPC & Camden County

A meeting was held at 2 White Horse Rd W, Voorhees, NJ on May 23th, 2023 at 2:00 pm for the above referenced project. The following people were in attendance:

Name	Organization	E-mail
James Winckowski, PE	Camden County	James.Winckowski@camdencounty.com
Joe Hale	Voorhees Township	jhale@VoorheesNJ.com
George Reilley	Atlantic Coin & Jewelry	D_Reilley@msn.com
Kush Patel, EIT	JMT	Kpatel3@jmt.com

The following items were discussed:

Project Overview

- Camden County, JMT & Voorhees Township presented the project to the property owner and provided plans.
- White Horse Road would be widened to accommodate left turn lanes onto Burnt Mill Road and truck turn movements from Burnt Mill Road to White Horse Road.
- ROW acquisition from The Atlantic Coin & Jewelry would be required for the design to progress.

Possible Additions to Design

During the meeting, attendees discussed possible ways to address conflicts with the property.

- New sidewalk would be placed along the perimeter of the property.
- Paving of the parking lot and reallocation of parking spaces.
- Relocation of the business's sign.
- Remove sidewalk buffer in front of the business to provide more space in front of the building.
- Address speeding vehicles with blinking speed limit signs.

Zoning Requirements

- Although this is a non-conforming lot and variances would be required during construction, any work would not be at fault of the owner. Any ordinances that conflict with this project can be reviewed by Voorhees Township.
- A follow up meeting was scheduled on June 13th, 2023 to further discuss the impacts to this property. This will give time to the property owner to review plans and identify other conflicts that were not discussed at the meeting.
- The Voorhees Township and Camden County will investigate existing zoning conditions and requirements that will effect the property and overall project site.

Kush Patel

Kush Patel, EIT

Design Engineer

5/30/2023

Date

Copy: All Meeting Attendees

MEMORANDUM

TO: All Meeting Attendees
DATE: June 15, 2023
FROM: Kush Patel, EIT
PROJECT: Concept Development – Intersection of White Horse Road and Burnt Mill Road
JMT JOB NO.: 21-03638-001
RE: Meeting with Property Owner & Camden County

A meeting was held at 2 White Horse Rd W, Voorhees, NJ on June 13th, 2023 at 2:00 pm for the above referenced project. The following people were in attendance:

Name	Organization	E-mail
Ilene Lampitt, Esq.	Camden County	James.Winckowski@camdencounty.com
George Reilley	Atlantic Coin & Jewelry	Steve.reilley1970@gmail.com
Steve Reilley	Atlantic Coin & Jewelry	
David Reilley	Atlantic Coin & Jewelry	
Kush Patel, EIT	JMT	Kpatel3@jmt.com

The following items were discussed:

General Notes

- Camden County & JMT presented revised features of the proposed project
  - This included a wider sidewalk without a buffer, possible relocations for the business's sign, and re-pavement of the entire parking lot.
- During property acquisition process, the property owner can stay in contact with the Assistant County Counsel, Matt White.
- The property owner is concerned with the curb raii along the property. The geometry of the curve radii will be further examined during the preliminary engineering phase.
- Adjacent properties are for sale, and the property owner is concerned that the value of these properties will effect the value of theirs.
- The property owner requests a full report of the proposed changes to the intersection and their property.

Kush Patel

Kush Patel, EIT

Design Engineer

6/15/2023

Date

Copy: All Meeting Attendees

Camden County & DVRPC Route 670 and 673 Stakeholder Meeting
Dec. 12, 2023 | 6:00 PM to 7:30 PM

MEETING MINUTES

MEETING RECORDING:

- https://vimeo.com/894110488?share=copy
- Password: scg23

ATTENDEES:

Name	Organization
John Coscia, Jr	DVRPC
Jim Winckowski	Camden County
Brian Derr	JMT
Kush Patel	JMT
David Long	JMT
Sophia Fox	Stokes Creative Group
Nicole Pace-Addeo	Stokes Creative Group
609-206-0516	Resident
609-220-8006	Resident
732-300-6415	Resident
Brendan	Resident
Chris Mauro	Resident
Christine	Resident
Chuck	Resident
Dave Reilley	Atlantic Coin Owner
David Gaines	Resident
Erika Reilley	Atlantic Coin Owner
George Reilley	Atlantic Coin Owner
Jen La Valle	Resident
Joyce	Resident
Karl G	Resident
Kirkwood Og	Resident
Leigh	Resident
Mark Wilson	Resident
Michael McCaffrey	Resident
Mike	Resident
Nick	Resident
Unknown	Resident
Samsung SM-N986U	Resident

OPENING REMARKS:

6:00 PM: Sophia Fox opened the meeting, greeted attendees, informed attendees that the meeting was being recorded and it will be posted on the county website following the meeting, and reviewed the housekeeping items.

Camden County & DVRPC Route 670 and 673 Stakeholder Meeting
Dec. 12, 2023 | 6:00 PM to 7:30 PM

MEETING MINUTES

6:02 PM: Jim Winckowski introduced the project and explained that is a concept development for improving the intersection at Burnt Mill and White Horse Road. He thanked the consultant team and DVRPC for progressing the project.

6:03: Brian Derr began the PowerPoint presentation, which included:

- Project Location and Existing Conditions
- Utilities
- Environmental Impacts
- Purpose and Need
- Alternatives
- Project Schedule

DISCUSSION:

6:16 PM: Open Forum began – Sophia Fox and Brian Derr (BD) invited participants to ask questions to the project team via the chat box or verbally.

609-206-0516, Resident: Nobody is going to be touching the VWF lots or coming onto Linden Avenue?

- **BD:** No, Linden Avenue is not being touched. And for the VFW, the only thing that will be occurring is the driveway will be reconstructed, which is all within the existing right-of-way.
- **Resident:** I live on 2nd and Linden. I don't want to see a jughandle coming through my neighborhood. So that's not going to happen, correct?
- **BD:** No, that is not within the preliminary preferred alternative.
- **Resident:** I really believe that there are a lot of things that could be done with the lights at the intersection.
- **BD:** Right, that is what this project is addressing. The left turns will have a lane and a left turn signal will be added to the signal head.

Chris Mauro, Resident: Will businesses be forced to close during construction?

- **BD:** No, all businesses will remain open during construction.

Mark Wilson, Resident: We are going to put the median down White Horse and it's going to block off access to and from Wawa. So all drivers will be going out at Burnt Mill Road. Are you going to have a left-hand turn for northbound Burnt Mill Road to go west down White Horse?

- **BD:** Yes, there will be a left turn phase for this left turn lane. And it will go concurrent with the left turn from the opposite direction on Burnt Mill.
- **Resident:** Is it going to be like the left turn now where there's an automatic time? Or is it going to be centric?
- **David Long, JMT:** A lot of the operations of the intersection will be addressed during the design phase. We played around with different phasing of making these left turns concurrent, which means they are happening at the same time. There are also different ways to do what's called slip phasing, which has one side occur first. That is very dependent on what side of the

intersection has higher volumes to maintain a good operation through the intersection. The effectiveness of allowing left turns to every side allows for overall better performance while still addressing a lot of the crashes that occur at the Wawa.

- **Resident:** I agree with the left-hand turns. But my concern is, you've taken two of the exits out of Wawa and you'll be funneling it all out to Burnt Mill Road. So you're losing about 8 ft. to the new stop line of Burnt Mill. How many trips in the morning are coming out of Wawa?
- **DL:** What we saw looking at the crash data is that cars going westbound and heading in the southwest direction, and trying to make a left into Wawa, there was half a dozen to a dozen rear-end collisions there. Or weaving accidents are occurring when trying to make quick lane change. So you're right, that traffic will get pushed back towards the intersection. Instead it's using a protected left to get in. I can work out those traffic counts specifically to give you the numbers. But I believe it was only a couple dozen.
- **Resident:** My question is - the morning rush hour is worse than the evening. We are taking the three exits, cutting out two, and going westbound on White Horse. Now in the morning, traffic coming out, actually stacks up and backs up into the driveway. That's going to take a lot of left hand turns in the morning to get rid of that stack, correct?
- **BD:** We will have to look at that in the design phase and iron out if we can push the stop bar up at all to help that.
- **Resident:** With the median - you're right, that will knock out most of the crashes in the left-hand turn on southbound Burnt Mill. But is that going to start funneling all of the traffic to come down 2nd and make a left on 2nd, go around and get into Wawa?
- **BD:** It shouldn't, they should be using the left turn.
- Resident: Right, but the drivers will get tired of sitting there and will go through the neighborhood. The only alternative is no left-hand turns during specific times from westbound White Horse on south 2nd. Is that being considered?
- **BD:** It has not, but we will take that into consideration for the design phase. Thank you for the comment, we will look into it.
- **Jim Winckowski (JW), Camden County:** We are also still contemplating breaking that median and allowing lefts onto Burnt Mill. We will evaluate it further during the design phase with up-to-date curb counts. If a safe left-hand turn can be made, we will most likely allow it.
- **Resident:** If you could please consider a left from White Horse onto 2nd would be great.
- **Resident:** On the Wawa corner, I see that the radius is being pushed back. The radius looks the same. When tankers come in down White Horse, turning onto Burnt Mill, the current radius is too tight. Has the radius been taken into account for the trucks?
- **BD:** Yes, we have looked at all the radiuses for truck movements. The stop bars are currently set based on those movements for both trucks and buses. That is something that will be reexamined during the PE and FD phase.

Dave Reilley, Property Owner: How will access to existing buildings/businesses be provided during construction? Please describe. Also, what distance (in feet) between the proposed right of way line along White Horse Road and my existing outside wall of my building (Atlantic Coin) is proposed?

Camden County & DVRPC Route 670 and 673 Stakeholder Meeting
Dec. 12, 2023 | 6:00 PM to 7:30 PM

MEETING MINUTES

- **BD:** The contractor will be required to maintain access to all the businesses and residents at all times. While they are doing the curb or sidewalk work, they will make sure that there is stone for access. This is a pretty typical thing to do for this type of project.
- **BD:** We are at a conceptual design phase, so the right-of-way is not entirely figured out yet. And won't be until we get to the preliminary engineering and final design phase. We can definitely talk with you more during those phases.
- **Resident:** Note - the front door of my business, which is on the south side of our existing building, needs to remain a usable door / entrance.
- **Resident:** By taking area away from our existing lot / taking away existing paved parking area and re-locating parking to a different area on the existing lot - please confirm the County will perform / prepare any required stormwater management in order to receive required approvals for relocated parking area?
- **BD:** Yes, any new pavement that is added for this project will be counted for in the stormwater numbers. It will need to be treated if over a certain number.

David Gaines, Resident: Would there be more traffic on Second Avenue to get to Burnt Mill Rd? or Burnt Mill to Popular to WHR? Should there be a "no through" traffic sign?

- **BD:** We will look at that during the design phase. We will also look at breaking the island to reduce the amount of traffic that comes out on Burnt Mill.
- **Resident:** This project should have been done prior to approvals being issued for WAWA. Is WAWA contributing to the cost of the project or is the project taxpayer funded?
- **JW:** As of now, the project is federally funded.
- **Resident:** Is the federal funding already obtained?
- **John Coscia (JC), DVRPC**: Yes, when PE begins we will have the federal funds to move this project along.

Chris Mauro, Resident: How/when will any determination be made of land to be taken to widen road and how is that handled with property owners?

- **JW**: It's usually during Final Design, after the design has been through preliminary. From there, the design engineer prepares legal documents and maps. Then there's a procedure that follows for appraisals and title reports. Once all of that has been put together, offer letters will be sent to each individual property owner. It is estimated that the preliminary process will start two years from now.
- **JC**: During the Preliminary Engineering Phase, there will be at least one Public Information Center and the design will be a little bit further along. So we will be able to have more discussion on that at the end of PE moving into Final Design.

Leigh, Resident: On northbound Burnt Mill before the light, can the right lane be lengthened to allow more vehicles to queue?

- **BD:** We look at that. Right now that curve line is being revised for the radius. The left lane will be set at an appropriate length based on the queuing needs. The curve line will be looked at during the PE phase.
- **Resident:** Will any special measures be taken to address emergency vehicles?
- **BD:** Yes, we are aware of the fire department in this area. We will be making sure that they can get through this intersection safely. We've had meetings with local officials and the Voorhees Township police were present. So we are coordinating with all the emergency services. Emergency vehicles will also be taken into consideration during our construction staging plans.

Kirkwood OG, Resident: In the second alternative, will you be blocking off the entrance on Burnt Mill to the Wawa? As discussed, the turn onto 2nd will be an issue if we don't have a turn lane.

- **BD:** No, we will not be blocking the entrance. If motorists come southbound on White Horse they would need to make a left and then a right into the driveway to get to Wawa. But the design phase will look closer into this median and what we can do there.
- **BD:** To review the crashes, a lot of the crashes occurred before the Wawa existed. There was numerous crashes of motorists exiting the driveways and getting impacted by a car going northbound on White Horse.
- **Resident:** On the corner of the gas station, are there any plans with that in the future? Is there anything that can be done to make the area look more presentable?
- **JW:** The County is not aware of any proposed development. I can relay the message to the municipality that there are questions about any future development.

CLOSING REMARKS:

7:30 PM: Ms. Fox closed the meeting and thanked everyone for attending. Emphasized that the project team really appreciates the participation from the public.

Minutes prepared by Stokes Creative Group, Inc.

Camden County Routes 670 & 673, Burnt Mill Road & White Horse Road
Concept Development
Intersection Design
December 12, 2023

PUBLIC INFORMATION CENTER

Project Overview

01 Project Location and Existing Conditions

02 Utilities

03 Environmental Impacts

04 Purpose & Need

05 Alternatives

06 Project Schedule

01 Existing Conditions

Project Location

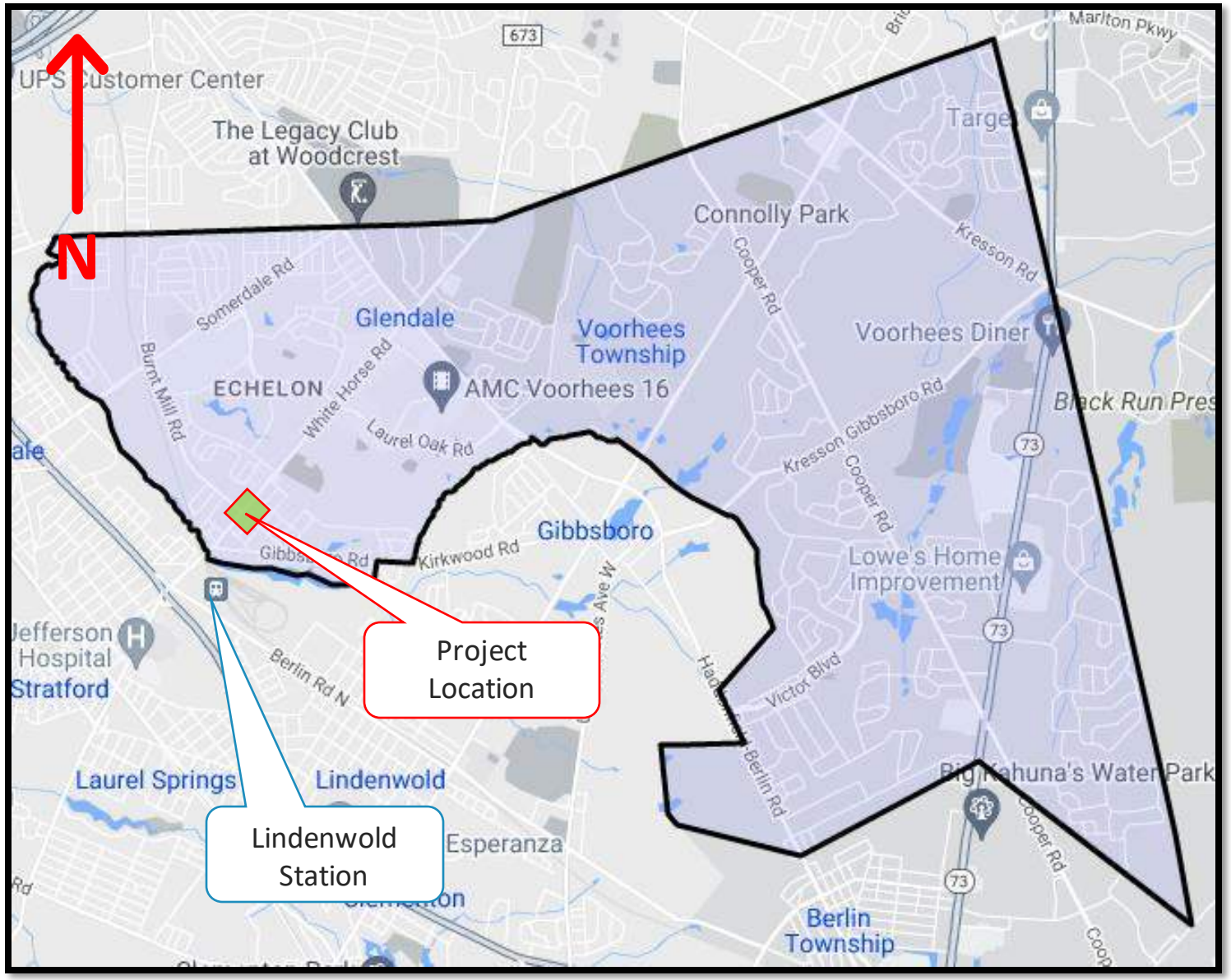
- Voorhees Township, Camden County

Intersection Location:

- CR 670, Burnt Mill Road (Mile Post 0.32)
- CR 673, White Horse Road (Mile Post 5.27)

Lindenwold Station:

- Station is ½ mile South of intersection



Existing Intersection Conditions

White Horse Road

- 4 lane road (2 in each direction)
- No shoulders
- Curb to Curb width of 46 feet

Burnt Mill Road

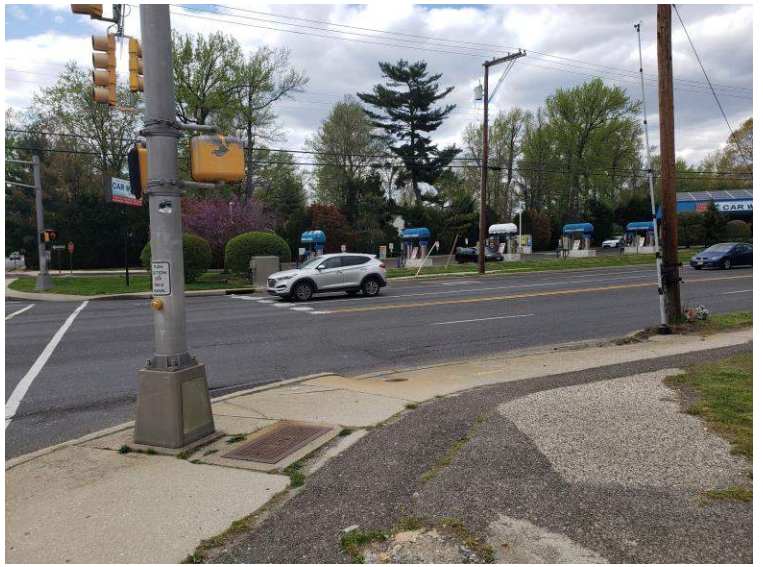
- 2 lane road (1 in direction of intersection)
- Variable width shoulders
- Curb to Curb width of 42 feet

Looking south on White Horse Road

Looking south on Burnt Mill Road

Existing Intersection Conditions

- Local Businesses
  - WAWA (Southwest corner)
  - Atlantic Coin & Jewelry Exchange (Northwest corner)
  - White Horse Car Wash & Pet Wash (Northeast corner)
  - Abandoned Building (Southeast corner)



Existing Bus Stops

02 Utilities

Existing Utilities

- Aerial Utilities:
  - Electric: Atlantic City Electric
  - Cable TV: Comcast
- NJDOT ITS & Signal Facilities
- Underground Utilities:
  - Gas: South Jersey
  - Water: NJ Water
  - Underground Drainage

03 Environmental Impacts

Agency Coordination/ Anticipated Permits and Approvals

Agency Coordination:

- NJ Department of Environmental Protection (NJDEP), Division of Land Resource Protection
- Camden County Soil Conservation District

Anticipated Permits and Approvals:

- Soil Erosion and Sediment Control Certification

Historic Resources

- No historically registered or eligible properties are within the project area
- Project is not within a historical district
- Project is not within an archeological sensitive area
- Due to funding, consultation with the NJ SHPO is required

Site Conditions

- Tributary to the Cooper River goes under the project site
- VFW Lodge is a Green Acre Encumbered Property which is not impacted by any alternative, therefore 4(f) evaluation is not anticipated
- Abandoned gas station and WAWA are identified to have hazardous waste sites

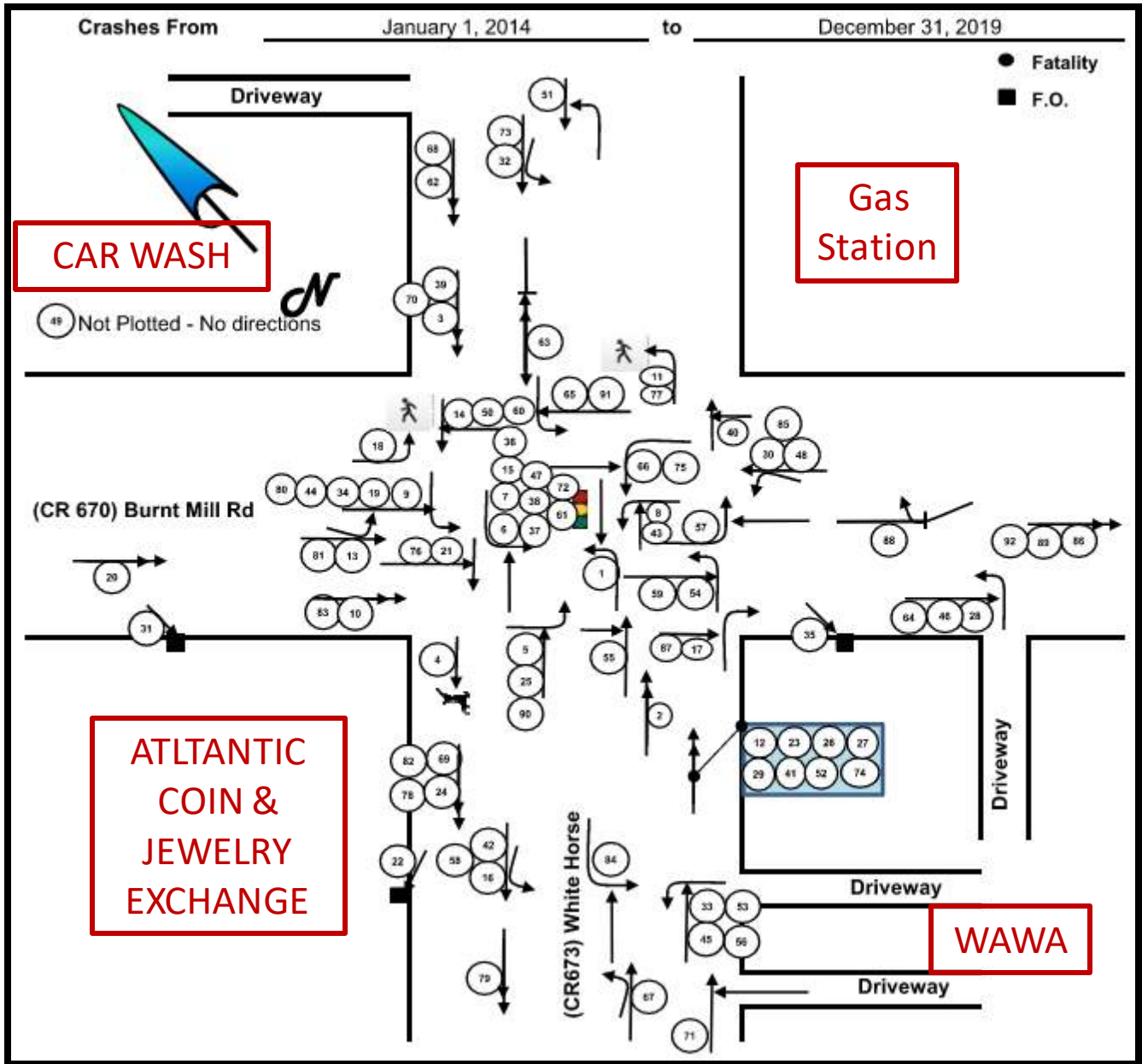

N
Burnt Mill Road
Maple Avenue
Dunhill Drive
WETLANDS
Poplar Avenue
Poplar Avenue
WETLANDS
White Horse Road West
WETLANDS
South 4th Street
GROUNDWATER
CONTAMINATION
TRIBUTARY TO
COOPER RIVER
GREEN ACRE
2nd Avenue
Linden Avenue
Chestnut Avenue
5th Street

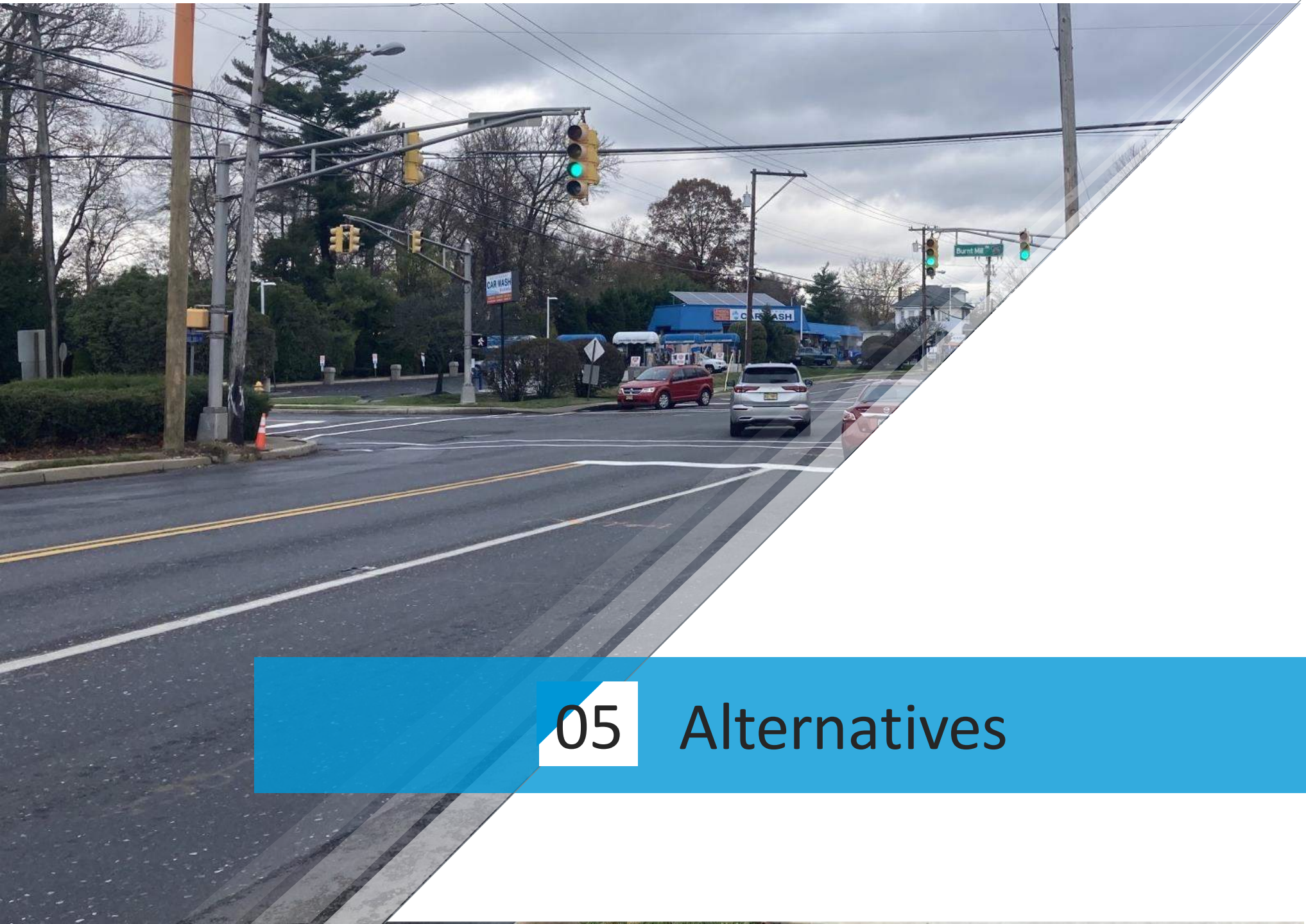
04 Purpose & Need

Purpose & Need

Purpose & Need

- Improve Safety & Provide Congestion Relief
- Address high crash rate and crash types
  - 92 collisions
  - Injury Crash Rate 14% higher than statewide averages
- Crash Rate Ranking
  - 2nd in Camden County
  - 5th in Delaware Valley Regional Planning Commission (DVRPC)
- Limit ROW impacts
  - Local Businesses

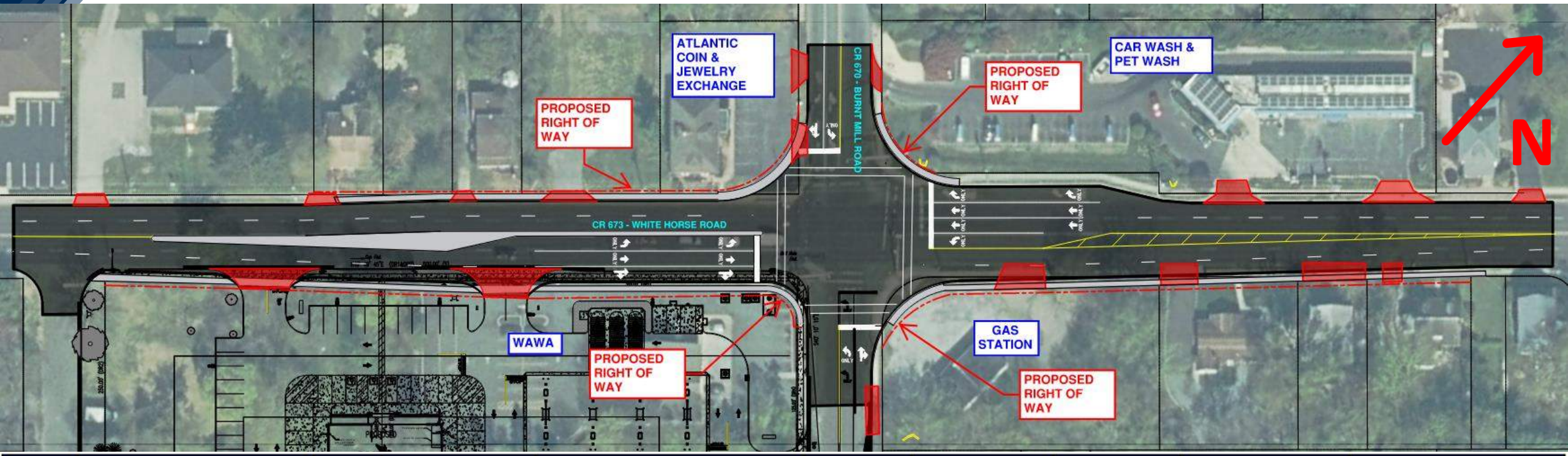




05 Alternatives

ALT.	DESCRIPTIONS	MEET PURPOSE AND NEED	ENVIRONMENTAL IMPACT & STORMWATER MANAGEMENT COMPLIANCE	COSTS			ACCESS IMPACTS	OPERATION & SAFETY IMPROVEMENTS	CONSTRUCTABILITY	ADVANTAGES	DISADVANTAGES
				UTILITY IMPACTS	ROW IMPACTS	EST. TOTAL PROJECT COST					
I	No-Build / Existing	No	N/A	N/A	N/A	N/A	N/A	•Inter LOS B (18.3)/B (18.6) •No change to existing safety flaws	N/A	N/A	•This altenative does not address the issues of crash rates and crash rates involving injuries. •Does not address traffic delay and congestion •CR 673 Left turns geometry has negative offset / limited visibilty
II	•Left turn lanes on both sides of White Horse Road. •Raised concrete median west of the intersection to prevent left turn movement exiting WAWA. •Travel lanes remain 11' each to maintain existing conditions onto White Horse Road •Increase turning radius of right turn from Burnt Mill Road SB to White Horse Road WB	Yes	•Net impervious < 0.25 ac •Disturbance < 1 ac •Stormwater management not required	•Utility pole relocation •Inlet relocation •Fire Hydrant relocation	•Approx. ROW take of 0.3 ac required (residential & commercial) •All partial takes •0.13 ac from WAWA	$2.15 million	17 driveways	•Inter LOS B (17.0)/B (19.6) •Proposed signaling will allow for safe left turn onto Burnt Mill road	•Construction can be done in two or three stages •Construction requires: milling, full depth pavement, concete construction (sidewalk, island)	•Remove left turn driveways from WAWA onto White Horse SB. •Reduce queue time for left turn movements •CR 673 Left turns geometry has 0 offset / increased visibilty	•Many properties are impacted due to ROW and access constraints
III	•Left turn jug-handles on both directions of White Horse Road. •No left turns allowed onto Burnt Mill Road •Travel lanes remain 11' each to maintain existing conditions •Increase turning radius of right turn from Burnt Mill Road SB to White Horse Road WB •The jug handle lane on White Horse Road EB is an exit only lane	Yes	•Net impervious > 0.25 ac •Disturbance < 1 ac •Stormwater management required •Impact to state open waters •Impact to hazardous waste site	•Utility pole relocation •Inlet relocation •Underground Stream & Headwall •Fire Hydrant relocation	•Approx. ROW take of 1.5 ac required (commercial, 3 full takes)	$2.32 million	4 Driveways	•Int LOS B (19.4)/B (18.1) •ADA facilities will be upgraded at all locations	•Construction can be done in one stage •Construction requires: milling, full depth pavement, concete construction (sidewalk)	•Remove conflict points created by left turn from White Horse Road to Burnt Mill Road	•Substandard design •Will not eliminate crash rates due to left turn movements from WAWA onto White Horse Road •Reroute stream and headwall at southeast corner of intersection
IV	•Two-lane roundabout •Lane width varies from 11' to 16' throughout roundabout onto White Horse Road •Only one exit lane to Burnt Mill Road SB & NB •Splitter islands located at all entry points of the roundabout	Yes	•Net impervious > 0.25 ac •Disturbance > 1 ac •Stormwater management required •Impact to state open waters •Impact to hazardous waste site	•Utility pole relocation •Inlet relocation •Underground Stream & Headwall •Fire Hydrant Relocation	•Approx. 1.0 ac of ROW required (2 full takes, 6 parial)	$2.93 million	14 Driveways	•Inter LOS A (7.3)/A (8.4) •Difficult turn movements for heavy vehicles onto White Horse Road •Atypical geomtetry due to site constraints. •Pedestrian crossing will be allowable at splitter islands	•Will require large scale mobilization and construction •Construction must be done in multiple stages •Construction requires: milling, full depth pavement, concete construction (sidewalk, island)	•Remove left turn exit from WAWA •Possible improvement of servicebility of the intersection	•ROW take required •Longer construction time •Higher construction cost onto White Horse Road •Reroute stream and headwall at southeast corner of intersection

Alternative 2



ALT.	DESCRIPTIONS	MEET PURPOSE AND NEED	ENVIRONMENTAL IMPACT & STORMWATER MANAGEMENT COMPLIANCE	COSTS			ACCESS IMPACTS	OPERATION & SAFETY IMPROVEMENTS	CONSTRUCTABILITY	ADVANTAGES	DISADVANTAGES
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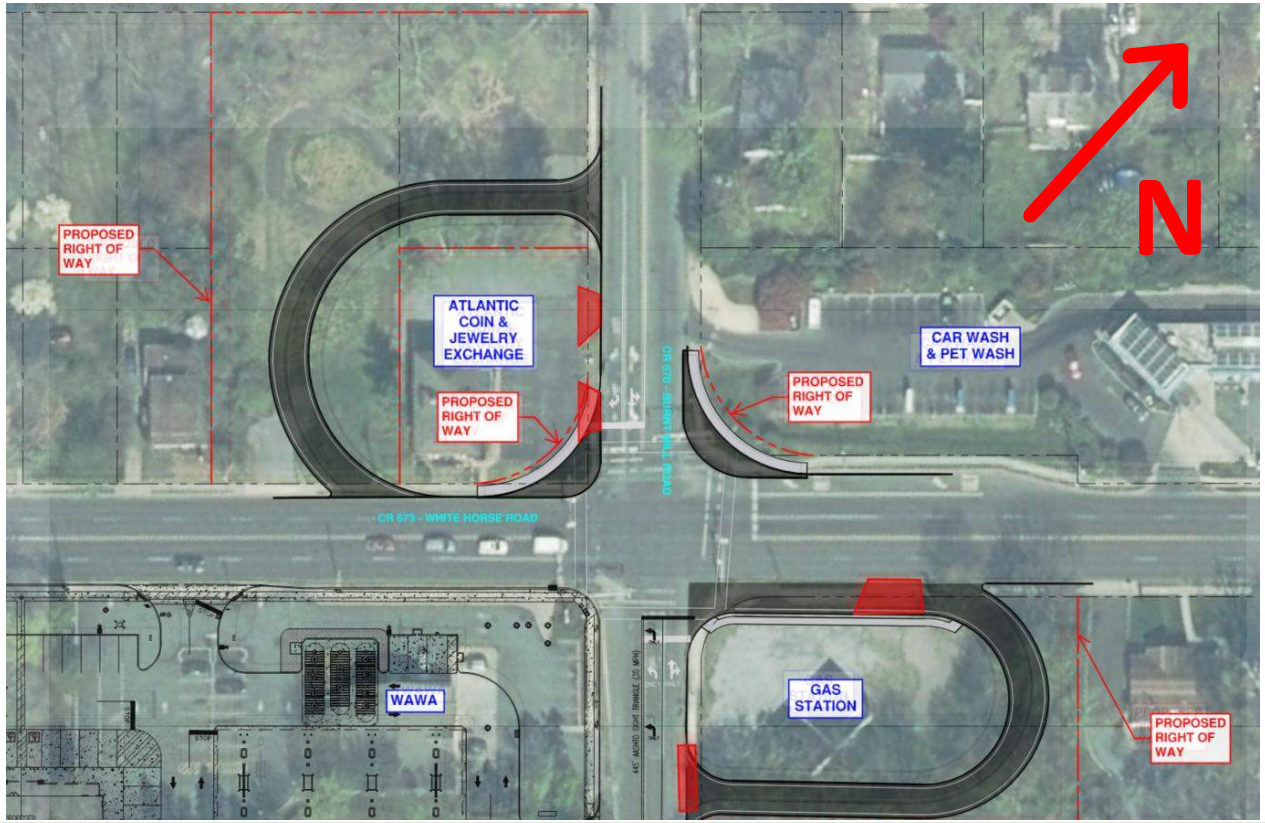
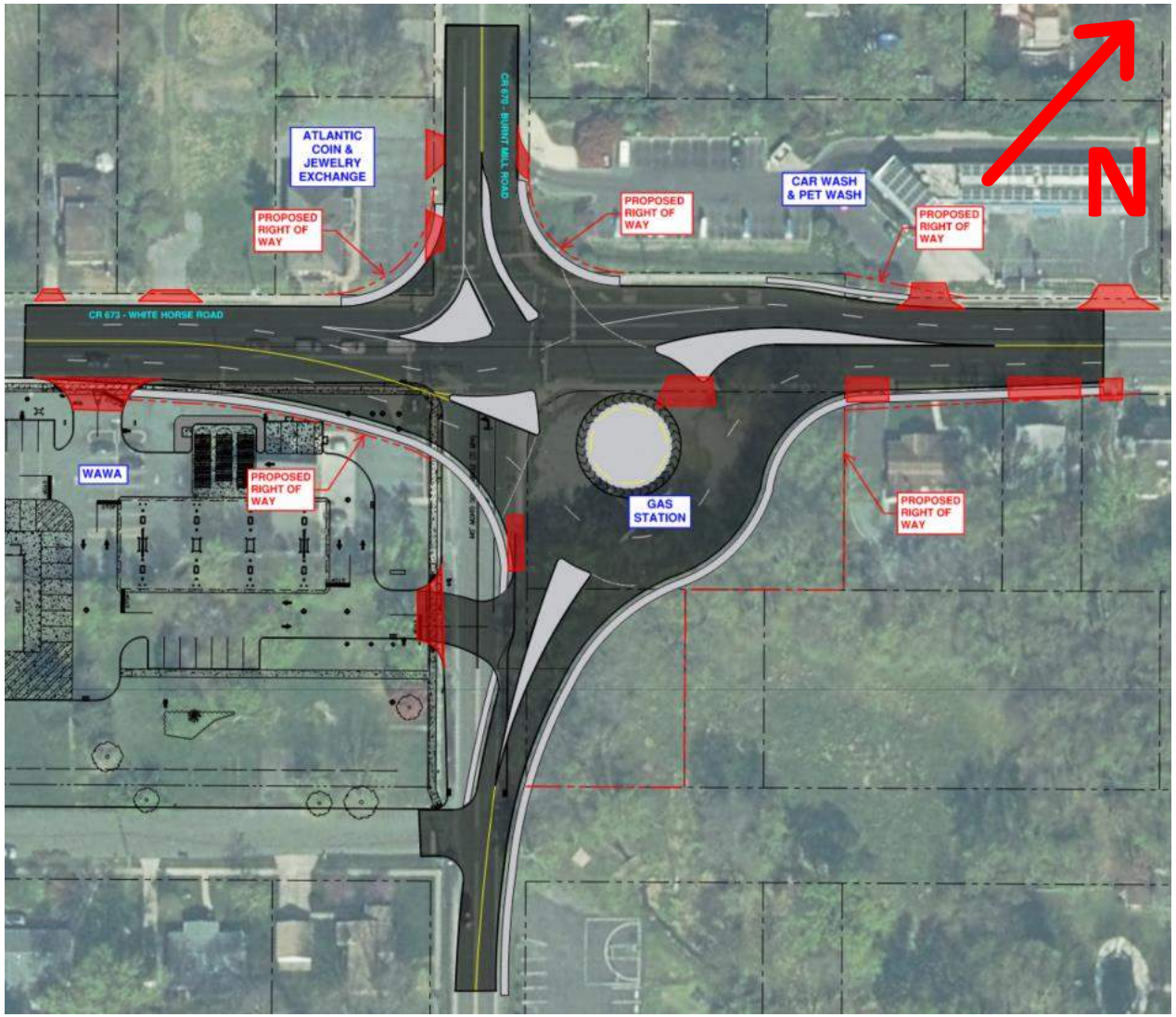
Alternative 3



ALT.	DESCRIPTIONS	MEET PURPOSE AND NEED	ENVIRONMENTAL IMPACT & STORMWATER MANAGEMENT COMPLIANCE	COSTS			ACCESS IMPACTS	OPERATION & SAFETY IMPROVEMENTS	CONSTRUCTABILITY	ADVANTAGES	DISADVANTAGES
				UTILITY IMPACTS	ROW IMPACTS	EST. TOTAL PROJECT COST					
III	•Left turn jug-handles on both directions of White Horse Road. •No left turns allowed onto Burnt Mill Road •Travel lanes remain 11' each to maintain existing conditions •Increase turning radius of right turn from Burnt Mill Road SB to White Horse Road WB •The jug handle lane on White Horse Road EB is an exit only lane	Yes	•Net impervious > 0.25 ac •Disturbance < 1 ac •Stormwater management required •Impact to state open waters •Impact to hazardous waste site	•Utility pole relocation •Inlet relocation •Underground Stream & Headwall •Fire Hydrant relocation	•Approx. ROW take of 1.5 ac required (commercial, 3 full takes)	$2.32 million	4 Driveways	•Int LOS B (19.4)/B (18.1) •ADA facilities will be upgraded at all locations	•Construction can be done in one stage •Construction requires: milling, full depth pavement, concete construction (sidewalk)	•Remove conflict points created by left turn from White Horse Road to Burnt Mill Road	•Substandard design •Will not eliminate crash rates due to left turn movements from WAWA onto White Horse Road •Reroute stream and headwall at southeast corner of intersection

Alternative 4



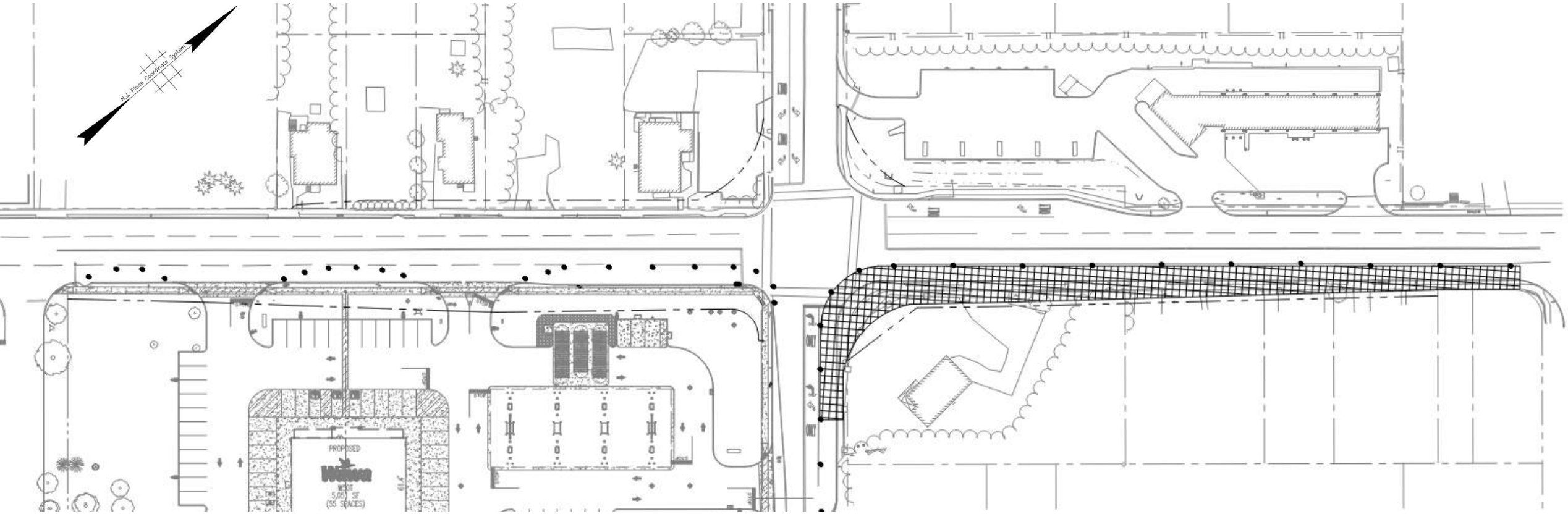
ALT.	DESCRIPTIONS	MEET PURPOSE AND NEED	ENVIRONMENTAL IMPACT & STORMWATER MANAGEMENT COMPLIANCE	COSTS		
				UTILITY IMPACTS	ROW IMPACTS	EST. TOTAL PROJECT COST
IV	•Two-lane roundabout •Lane width varies from 11' to 16' throughout roundabout onto White Horse Road •Only one exit lane to Burnt Mill Road SB & NB •Splitter islands located at all entry points of the roundabout	Yes	•Net impervious > 0.25 ac •Disturbance > 1 ac •Stormwater management required •Impact to state open waters •Impact to hazardous waste site	•Utility pole relocation •Inlet relocation •Underground Stream & Headwall •Fire Hydrant Relocation	•Approx. 1.0 ac of ROW required (2 full takes, 6 parial)	$2.93 million

ACCESS IMPACTS	OPERATION & SAFETY IMPROVEMENTS	CONSTRUCTABILITY	ADVANTAGES	DISADVANTAGES
14 Driveways	•Inter LOS A (7.3)/A (8.4) •Difficult turn movements for heavy vehicles onto White Horse Road •Atypical geomtetry due to site constraints. •Pedestrian crossing will be allowable at splitter islands	•Will require large scale mobilization and construction •Construction must be done in multiple stages •Construction requires: milling, full depth pavement, concete construction (sidewalk, island)	•Remove left turn exit from WAWA •Possible improvement of servicebility of the intersection	•ROW take required •Longer construction time •Higher construction cost onto White Horse Road •Reroute stream and headwall at southeast corner of intersection

Construction Staging

- Stage 1 – White Horse Road Northbound
  - Phase A – Burnt Mill Road Northbound
  - Phase B & C – Burnt Mill Road Southbound
  - Phase D – Burnt Mill Road Left Turn Lane
- Stage 2 – White Horse Road Southbound
  - Phase A – Burnt Mill Road Northbound
  - Phase B – Burnt Mill Road Southbound
  - Phase C – Burnt Mill Road Left Turn Lane
- Stage 3 – White Horse Road Median
  - Phase A – Concrete Median & Left Turn Lanes
  - Phase B & C – White Horse Road Southbound Right Through and Right Turn Lanes

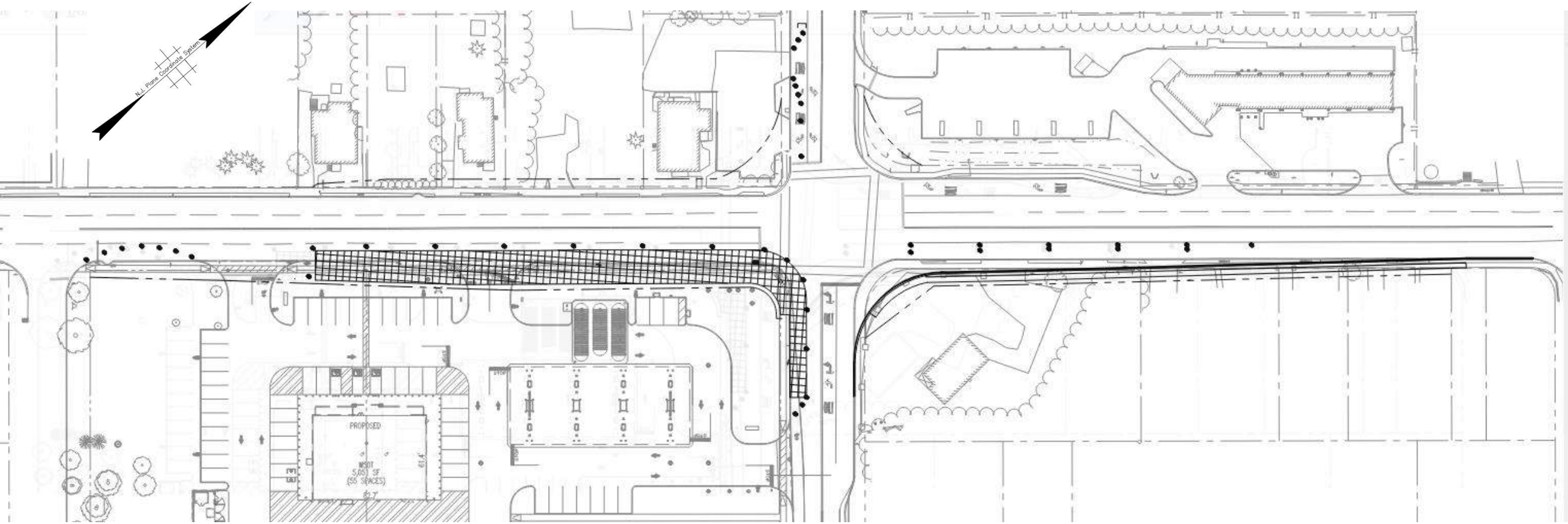
Construction Staging



Stage 1 – White Horse Road Northbound

Phase A – Burnt Mill Road Northbound

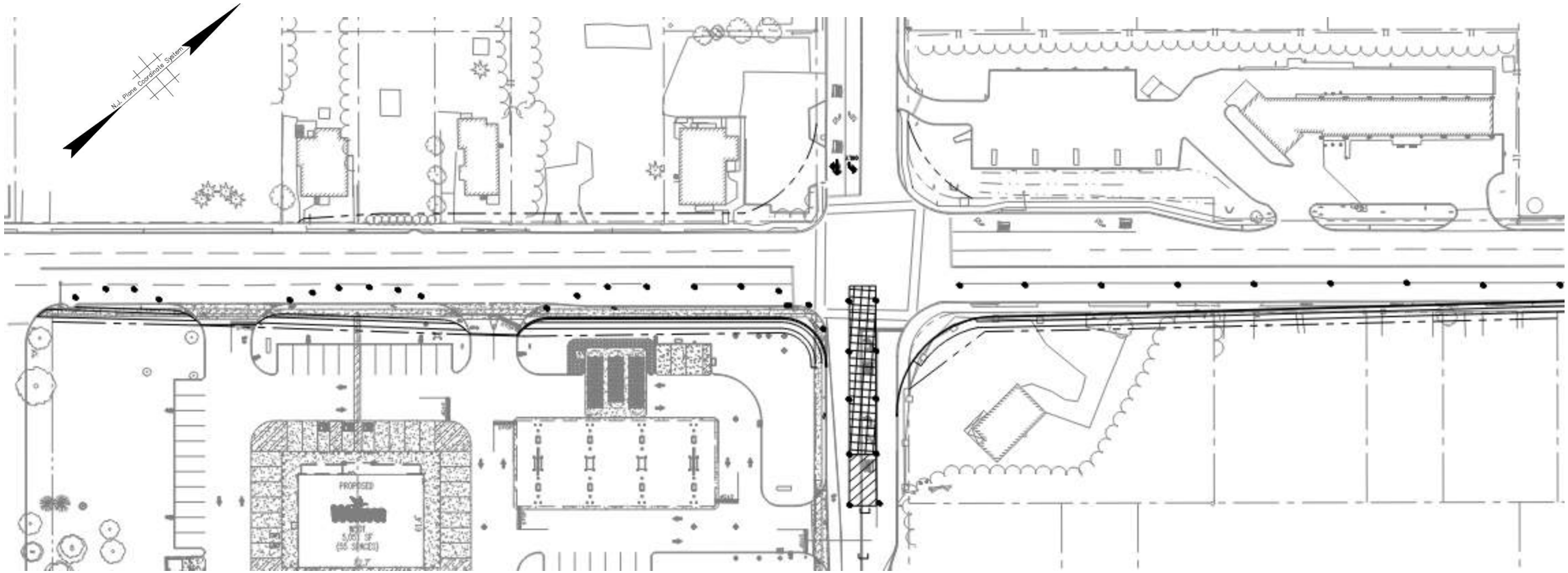
Construction Staging



Stage 1 – White Horse Road Northbound

Phase B & C – Burnt Mill Road Southbound & WAWA Driveways

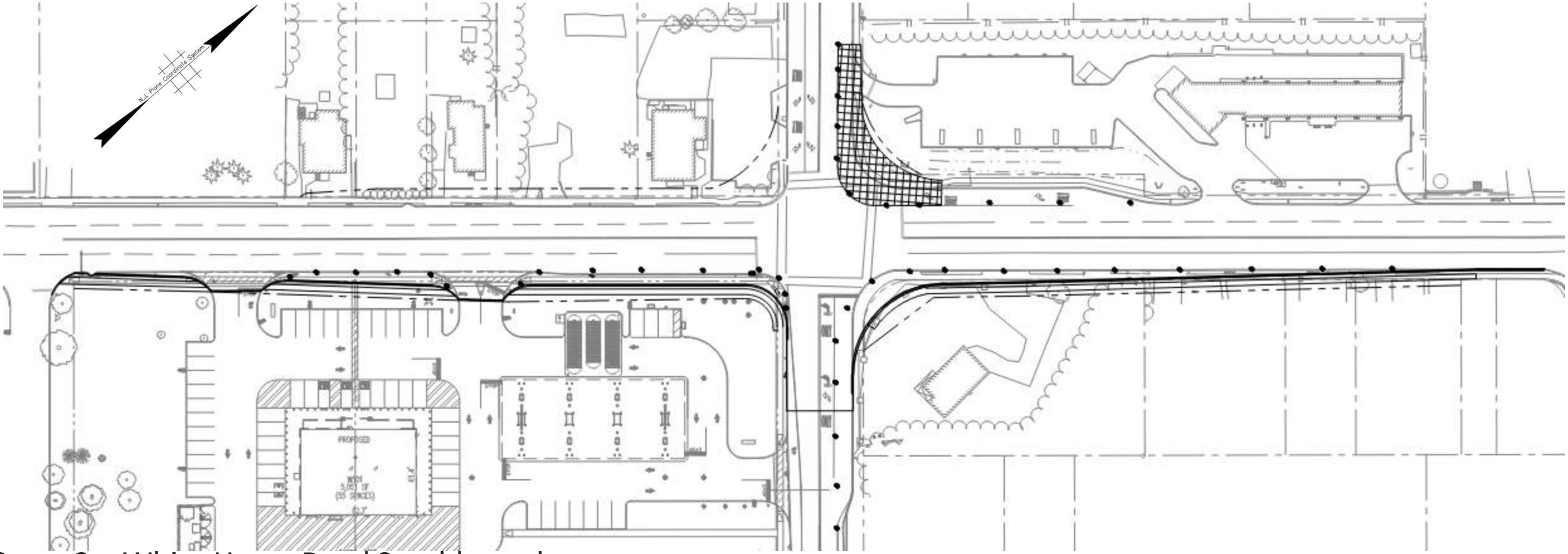
Construction Staging



Stage 1 – White Horse Road Northbound

Phase D – Burnt Mill Road Left Turn Lane

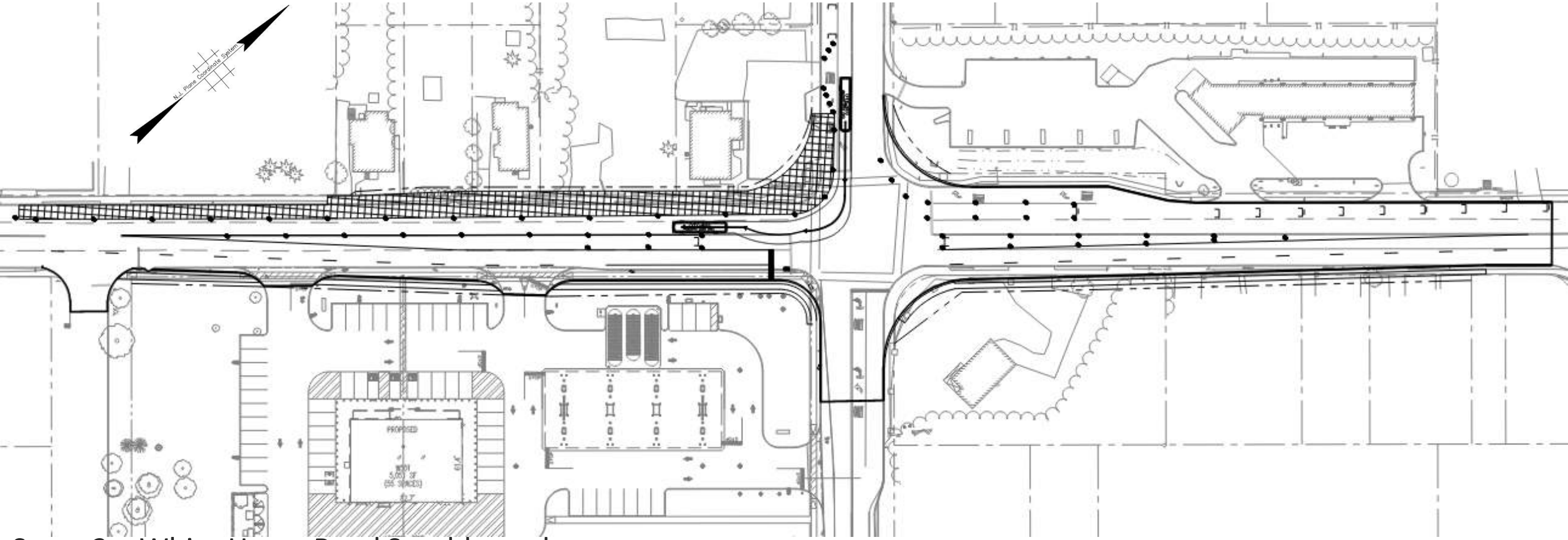
Construction Staging



Stage 2 – White Horse Road Southbound

Phase A – Burnt Mill Road Northbound

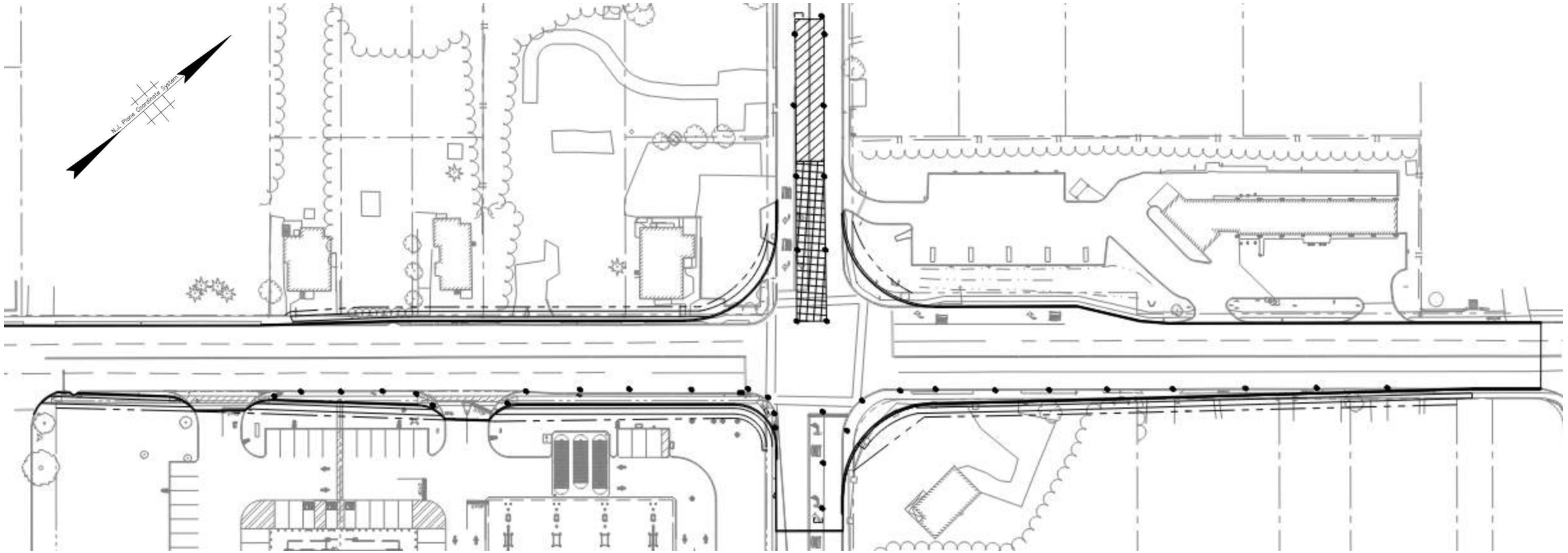
Construction Staging



Stage 2 – White Horse Road Southbound

Phase B – Burnt Mill Road Southbound

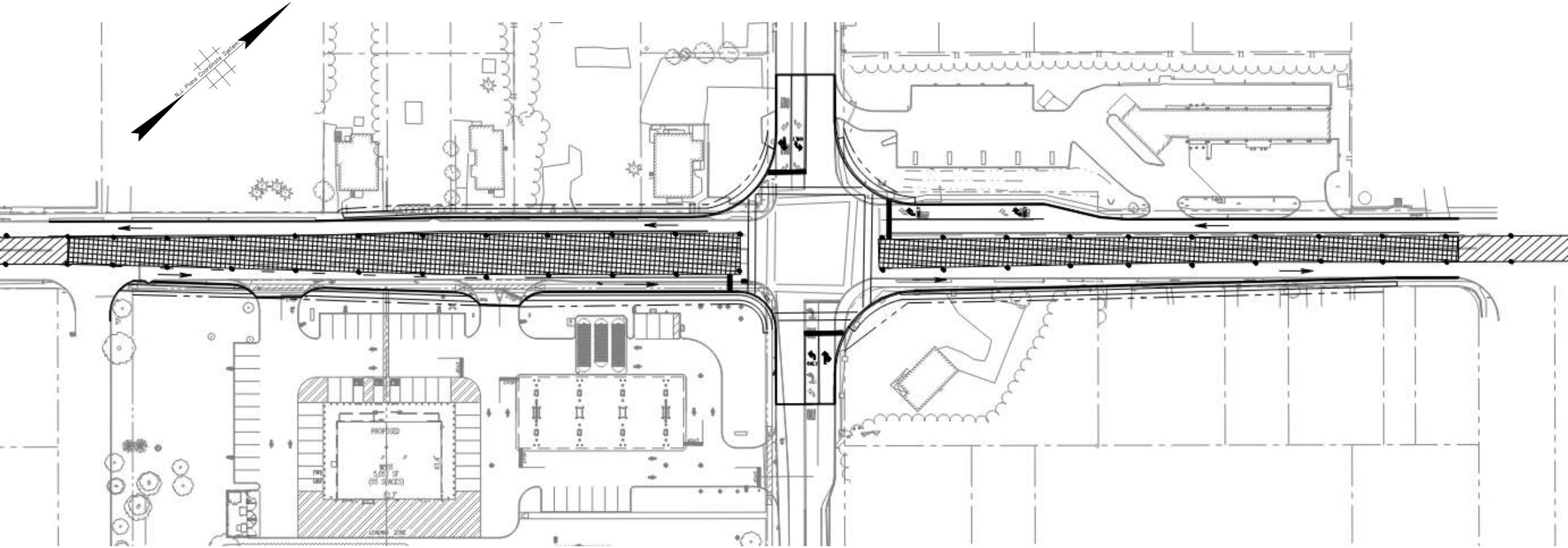
Construction Staging



Stage 2 – White Horse Road Southbound

Phase C – Burnt Mill Road Left Turn Lane

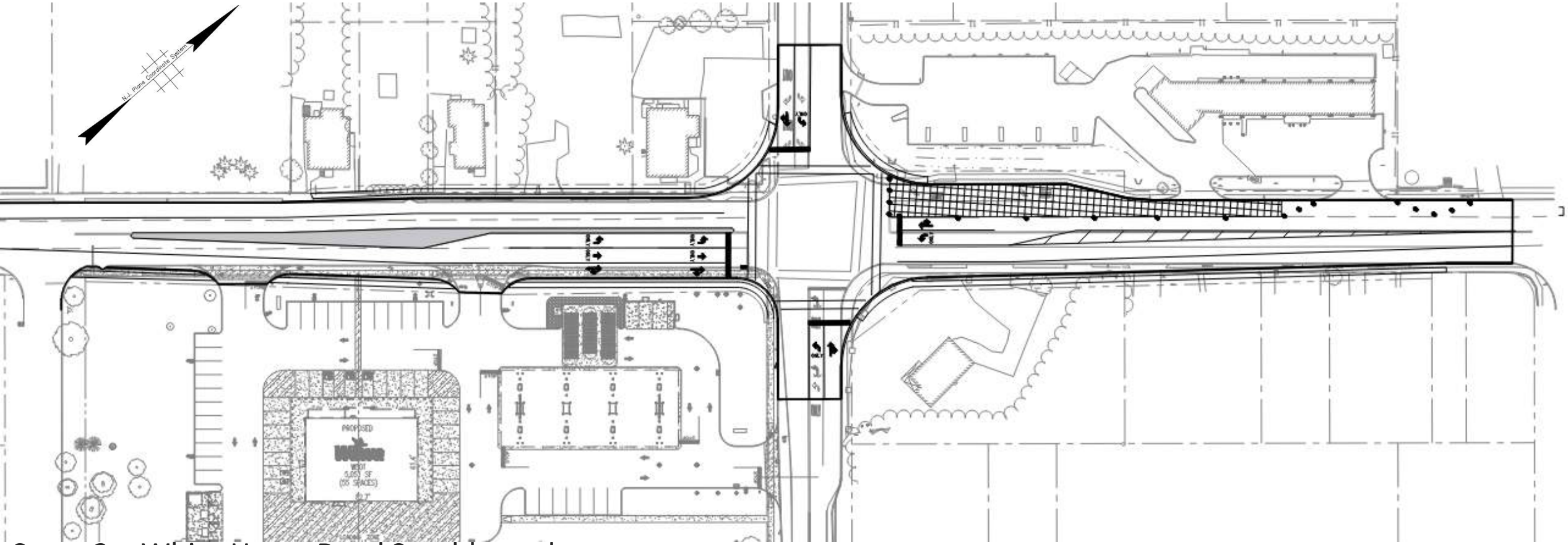
Construction Staging



Stage 3 – White Horse Road Southbound

Phase A – Burnt Mill Road Left Turn Lane

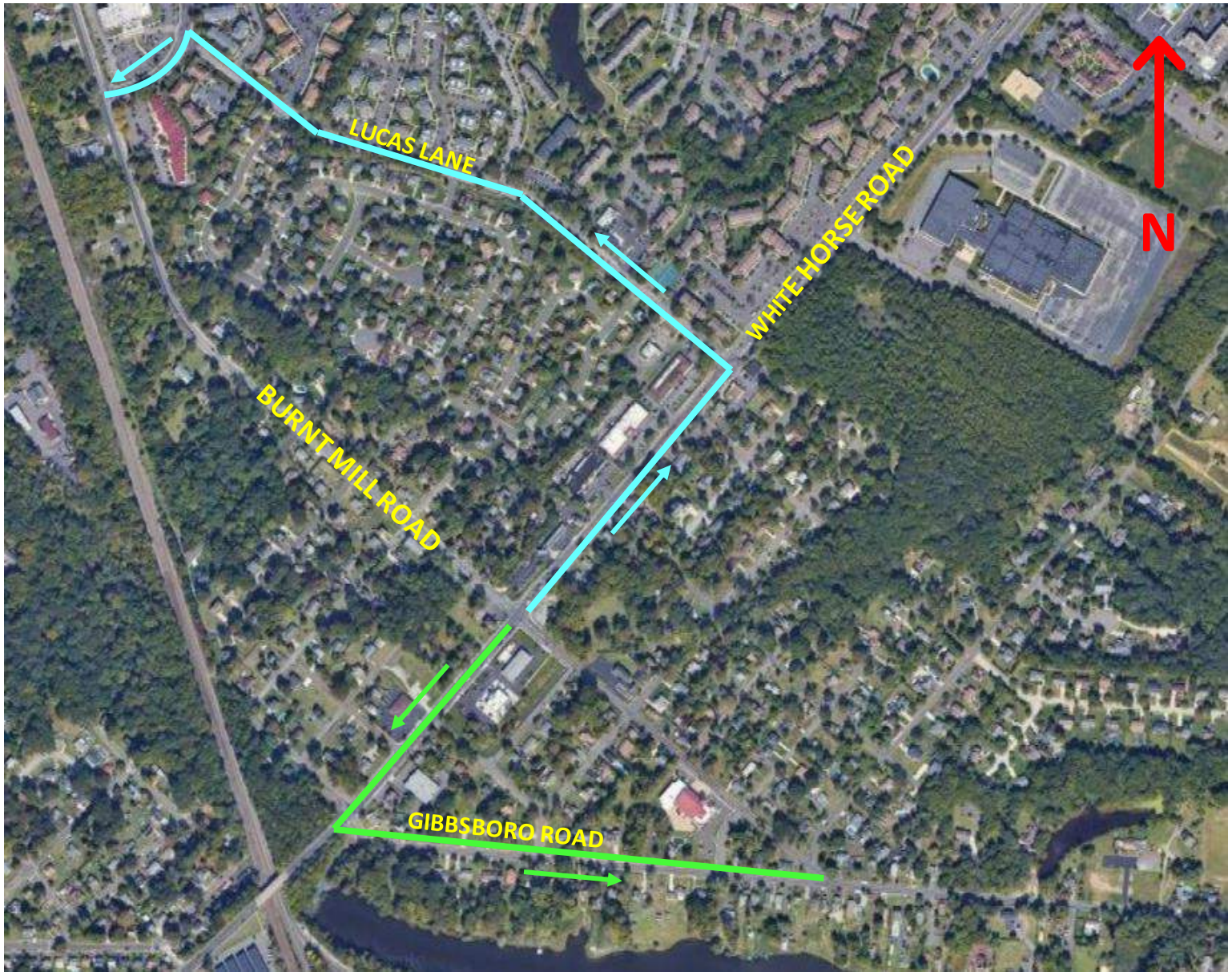
Construction Staging



Stage 3 – White Horse Road Southbound

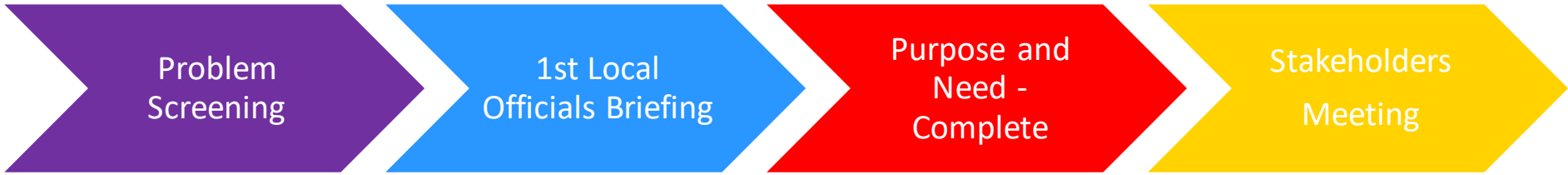
Phase B & C – Right Lane

Detours


LUCAS LANE
WHITE HORSE ROAD
BURNT MILL ROAD
GIBBSBORO ROAD
N

06 Project Schedule

Project Schedule

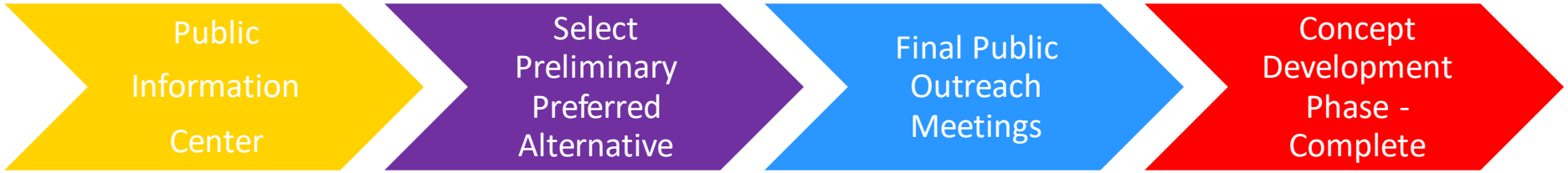


Completed

Completed
August 2022

Completed
September 2022

Completed
October 2022



Completed
December 2022

Completed
Fall 2023

Winter 2023

2024

Open Forum

Contact us:

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John Coscia

DVRPC
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Brian Derr, PE

JMT
Associate VP, Project Manager
Phone Number: 609-512-3430
Email: bderr@jmt.com

APPENDIX K

Utility Coordination

Concept Development Intersection Study for CR 670 and CR 673
JMT Project No. 201-03638
Township of Vorhees, Camden County
Utility Companies Involved

Facilities in Project Limits	Utility Company	Contact Name, Address, Telephone, Email	Response From	Letter No. 1		Letter No. 2		Remarks
				Date Sent	Date Response Received	Date Sent	Date Response Received	
Overhead Electric	Atlantic City Electric	William Saraceno Sr Manager, Distribution Engineering & Design 5100 Harding Way Mays Landing, NJ 08330 Mail Stop: 63ML34 (609) 625-6661 william.saraceno@exeloncorp.com		6/16/2022				
Underground Telephone	Verizon	Thomas H. Young Senior Manager, Network Engineering and Operations 657 Florida Grove Road Hopelawn, NJ 08861 (732) 683-5174 Thomas.h.young@verizon.com	Thomas J. Reber Senior Engineering Specialist 10 Tansboro Road, 2nd floor Berlin, NJ 08009 (856) 306-8606 thomas.j.reber@verizon.com	6/16/2022	6/20/2022			
Overhead Television	Comcast	Quran Osiris Manager 1 - Region South 1250 Haddonfield-Berlin Rd Cherry Hill, NJ 08034 (267) 838-1396 Quran_Osiris@comcast.com	Tony Tannouri Planning & Design Tony_Tannouri@cable.comcast.com	6/16/2022	6/24/2022			
Gas & Electric	PSE&G	Jerry Laurizio Sr. Project Manager-3rd Party Relocation 4000 Hadley Road, M/C 430 South Plainfield, NJ 07080 (908) 412-2208 Jeremiah.Laurizio@pseg.com	Jerry Laurizio Sr. Project Manager-3rd Party Relocation 4000 Hadley Road, M/C 430 South Plainfield, NJ 07080 (908) 412-2208 Jeremiah.Laurizio@pseg.com	6/16/2022	6/29/2022			
Gas	South Jersey Gas Company	Jonathan Oliva Manager, Project Management 1 South Jersey Plaza, Route 54 Folsom, NJ 08037 (609) 561-9000 ext: 4487 joliva@sjindustries.com	Jessica Snyder Records Specialists Associate jsnyder@sjindustries.com Include: Darren Capano dcapano@sjindustries.com Monika Pawelska-Stewart	6/16/2022	7/20/2022			Include Darren in any pre-con meetings. SJ Gas has a proposed project to replace existing facilities. Coordiante with Monika and Shalyn. Reference number for project is WO# 4410556
Water	NJ American Water Company	Melissa A. Hazelton Engineering Specialist 1 Water Street Camden, NJ 08102 (856) 955-4403 melissa.hazelton@amwater.com	Melissa A. Hazelton Engineering Specialist 1 Water Street Camden, NJ 08102 (856) 955-4403 melissa.hazelton@amwater.com	6/16/2022	6/20/2022			
Wastewater	Public Works	100 American Way Vorhees, NJ 08043 (856) 428-5499 publicworks@vorheesnj.com Hours: Fall/Winter 7am to 3pm Spring/Summer 6am to 2pm		6/16/2022				

Patel, Kush

From: Reber, Thomas J <thomas.j.reber@verizon.com>
Sent: Monday, June 20, 2022 11:29 AM
To: Patel, Kush
Cc: Derr, Brian; Lewis, Rena M
Subject: [EXTERNAL] Burnt Mill Rd & White Horse Rd - CD Study
Attachments: Verizon Utility Letter 1.pdf

Kush,

Please see the attached letter #1 for this upcoming project. Let me know if you have any questions.

verizon
Thomas Reber

Sr Engineering Specialist - Outside Plant

O 856 306 8606
M 917 565 4102
10 Tansboro Road
2nd Floor
Berlin, NJ 08009

State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DIANE GUTIERREZ-SCACCETTI
Commissioner

Date: June 16th, 2022

Thomas H. Young
Senior Manager, Networking Engineering & Operations
Verizon New Jersey Inc.
657 Florida Grove Road
Hopelawn, NJ 08861

Re:
Burnt Mill Road & White Horse Road
Concept Development Intersection Study
for CR 670 and CR 673
Vorhees Township, Camden County

Project Designer:
Johnson, Mirmiran & Thompson
1200 Lenox Dr, Suite 101
ATTN: Brian Derr
609-512-3430
BDerr@jmt.com

Dear Mr. Young,

The New Jersey Department of Transportation (NJDOT) has engaged us to complete the *Concept Development Study* for a project known as Concept Development Intersection Study for CR 670 and CR 673**.** The project consists of design improvements for the intersection of Burnt Mill Road and White Horse Road in Vorhees Township, Camden County. A project location map and brief project description are attached to give you a better understanding of the work that may be proposed for this project. Based upon these attachments, please provide the amount of Preliminary Engineering charges you may incur. The NJDOT will set up funding for these charges and will reimburse you through a *Change Order* if additional funding is necessary. A Preliminary Engineering estimate will be projected for your Company if no response is received after ***July 16th***.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Verizon** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Re: Concept Development Intersection Study for CR 670 and CR 673

Should you have existing or proposed plans within the project limits, it is necessary for you to notify us.

Please complete the following questionnaire and return it to the Designer's Engineer by ***July 16th, 2022***. Please return the questionnaire by mail, email or FAX.

(X) The Company Engineer to be contacted is:

Name Thomas Reber
Company Verizon New Jersey Inc
Title Sr Engineering Specialist
Address 10 Tansboro Rd
Berlin, NJ 08009

Tel: 856-306-8606
Fax:
Email: thomas.j.reber@verizon.com

(X) The UTILITY AGREEMENT shall be sent to the following person:

( ) Same as above or fill in below:

Name Thomas Young
Company Verizon New Jersey Inc
Title Senior Manager
Address 657 Florida Grove Rd
Hopelawn, NJ 08861

Tel: 732-683-5174
Fax:
Email: thomas.h.young@verizon.com

(X) **The amount of Preliminary Engineering funding needed will be $** 15,000
(**This amount is only an estimate**)

(X) We **DO HAVE** existing facilities within the project limits.

( ) We **DO NOT HAVE** existing facilities within the project limits.

( ) We **HAVE** PROPOSED facilities planned within the project limits.

(X) **The following companies are tenants on/in our facilities within the project limits:**

Comcast

Re: Concept Development Intersection Study for CR 670 and CR 673

(__X__) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.

(_____) Design/Engineering
(__X__) Construction – Some or All? Manhole/conduit if necessary
(_____) Neither – the Company will perform (or arrange to have performed) all needed work.
(_____) Not certain at this time.

Questions concerning this matter should be directed to the Design Engineer.

Thank you for your cooperation in this matter.

Sincerely,

Brian Derr, P.E.
Senior Associate, Project Manager

Attachment

c: _____ NJDOT Project Manager

_____ NJDOT Assistant Project Manager

TOWNSHIP OF VORHEES

COUNTY OF CAMDEN

New Jersey State Plane Coordinate System NAD83

LINDEN AVENUE

BURNT MILL ROAD (C.R. 670)

2ND AVENUE

S 2ND STREET

WHITE HORSE ROAD WEST (C.R. 673) (formerly Glendale Avenue)

WHITE HORSE ROAD (C.R. 673) (formerly Glendale Av

△ 1769

△ 1340

△ 2549

△ 2980

△ 10330

SAN. MH# RIM=65.71

#VZ189

UPL #125

#VT127

SAN. MH RIM=65.14

SAN. MH RIM=65.46 INV(A)=54.95 INV(B)=55.47

10"(D)

COMM. MH RIM=64.84

COMM. MH RIM=64.81

ONLY

DOT MH RIM=65.10

#BT128

#C213

SAN. MH RIM=64.53

UNKWN. MH RIM=64.43

UNKWN. MH RIM=64.49

SAN. MH RIM=64.48

SAN. MH RIM=64.72

#C231

DOT MH RIM=65.60

DOT MH RIM=65.26

#C-24872

#C180

8"STEEL

SAN. MH RIM=69.37 INV=65.61

#C181

#C182

#C573

SAN. MH RIM=67.43

#C184

UPL NO#

COMM. MH RIM=69.43

COMM. MH RIM=69.51

SAN. MH RIM=69.46 INV=63.51

#132

SAN. MH RIM=69.41

UPI #PN.375.39

#VZ130

#129

SAN. MH RIM=67.04

#BT128_1 2-VT

COMM. MH RIM=65.62

COMM. MH RIM=65.90

#VZ125

#1285

#VZ133

30' 0 30' 60'

CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

6/13/2022
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TOWNSHIP OF VORHEES

COUNTY OF CAMDEN

WHITE HORSE ROAD WEST
(C.R. 673)
(formerly Glendale Avenue)

BURNT MILL ROAD
(C.R. 670)

S 4TH STREET

AVENUE

DOT MH
RIM=65.10

#BT128

UPL NO#

#C213

SAN. MH
RIM=64.53
UNKWN. MH
RIM=64.43

UNKWN. MH
RIM=64.49

SAN. MH
RIM=64.72

SAN. MH
RIM=64.48

COMM. MH
RIM=65.82

COMM. MH
RIM=65.90

SAN. MH
RIM=64.72

#V1212

#C231

DOT MH
RIM=65.60

DOT MH
RIM=65.26

#C-24872

UNKWN. MH
RIM=66.03

#C232

#PN30437

UPL #C233

#H30295

#H-30296

#C218

#V1285

#403

10330

3237

SAN. MH
RIM=68.24
FILLED W/LIQUID

SAN. MH
RIM=68.05
FILLED W/LIQUID

UPL #BT212VZ

NO#

#B1218

SAN. MH
RIM=67.66

UPL NO# 10"PVC

SAN. MH
RIM=68.71
INV(o)=62.27
INV(i)=60.27

COMM. MH
RIM=68.34

COMM. MH
RIM=68.30

UNKWN. MH
RIM=68.10

#V1213

New Jersey State Plane Coordinate System
NAD83

30' 0 30' 60'

CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

REVISION	BY	CHK.	DATE

6/13/2022
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Patel, Kush

From: Osiris, Q. <Quran_Osiris@comcast.com>
Sent: Friday, June 24, 2022 3:19 PM
To: Tannouri, Tony; Patel, Kush
Cc: Derr, Brian; Leahy, Sheé
Subject: [EXTERNAL] Re: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Thanks!

Q. Osiris
Sent via mobile iOS

From: Tannouri, Tony <Tony_Tannouri@cable.comcast.com>
Sent: Friday, June 24, 2022 11:16:34 AM
To: Osiris, Q. <Quran_Osiris@cable.comcast.com>; Patel, Kush <KPatel3@jmt.com>
Cc: Derr, Brian <BDerr@jmt.com>; Leahy, Sheé <Shee_Leahy@comcast.com>
Subject: RE: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Please see attached PDF file for requested information and markup for existing Comcast plant within the project limits

Thanks
Tony Tannouri
Planning & Design
COMCAST

From: Osiris, Q. <Quran_Osiris@cable.comcast.com>
Sent: Friday, June 24, 2022 8:03 AM
To: Patel, Kush <KPatel3@jmt.com>
Cc: Derr, Brian <BDerr@jmt.com>; Tannouri, Tony <Tony_Tannouri@cable.comcast.com>
Subject: RE: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Tony – please assist with this request.

Q Osiris
Manager 1, Planning and Construction (Freedom)
M: 267-838-1396

From: Patel, Kush <KPatel3@jmt.com>
Sent: Thursday, June 16, 2022 11:28 AM
To: Osiris, Q. <Quran_Osiris@cable.comcast.com>
Cc: Derr, Brian <BDerr@jmt.com>
Subject: [EXTERNAL] DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Good morning,

JMT is conducting a concept development study for the DVRPC for the above referenced project. Attached you fill find a utility verification letter and plan.

If you have any questions, please reach out to me or Brian Derr at BDerr@jmt.com.

Thank you,
Kush Patel

Johnson, Mirmiran & Thompson, Inc.
An Employee-Owned Company

Kush Patel, E.I.T.
Design Engineer

1200 Lenox Drive, Suite 101
Trenton, New Jersey 08648
P. 609-512-3427
Kpatel3@jmt.com


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State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DIANE GUTIERREZ-SCACCETTI
Commissioner

Date: June 16th, 2022

Quran Osiris
Manager – South Region
Comcast Cable Communications
1250 Haddonfield-Berlin Rd
Cherry Hill, NJ 08034

Re:
Burnt Mill Road & White Horse Road
Concept Development Intersection Study
for CR 670 and CR 673
Vorhees Township, Camden County

Project Designer:
Johnson, Mirmiran & Thompson
1200 Lenox Dr, Suite 101
ATTN: Brian Derr
609-512-3430
BDerr@jmt.com

Dear Mr. Osiris,

The New Jersey Department of Transportation (NJDOT) has engaged us to complete the *Concept Development Study* for a project known as Concept Development Intersection Study for CR 670 and CR 673**.** The project consists of design improvements for the intersection of Burnt Mill Road and White Horse Road in Vorhees Township, Camden County. A project location map and brief project description are attached to give you a better understanding of the work that may be proposed for this project. Based upon these attachments, please provide the amount of Preliminary Engineering charges you may incur. The NJDOT will set up funding for these charges and will reimburse you through a *Change Order* if additional funding is necessary. A Preliminary Engineering estimate will be projected for your Company if no response is received after ***July 16th***.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Comcast Cable Communications** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Re: Concept Development Intersection Study for CR 670 and CR 673

Should you have existing or proposed plans within the project limits, it is necessary for you to notify us.

Please complete the following questionnaire and return it to the Designer's Engineer by ***July 16th, 2022***. Please return the questionnaire by mail, email or FAX.

(✓) The Company Engineer to be contacted is:

Name: Tony Tannouri
Company: Comcast
Title: Planning & Design
Address: 1250 Haddonfield-Berlin Rd,
Cherry Hill, NJ 08034

Tel:
Fax:
Email: tony_tannouri@cable.comcast.com

(✓) The UTILITY AGREEMENT shall be sent to the following person:

(____) Same as above or fill in below:

Name: Quran Osiris
Company: Comcast
Title: Manager, Construction
Address: 1250 Haddonfield-Berlin Rd,
Cherry Hill, NJ 08034

Tel: 1-856-427-4625
Fax:
Email: quran_osiris@cable.comcast.com

(✓) **The amount of Preliminary Engineering funding needed will be $** 1500.00
(**This amount is only an estimate**)

(✓) We **DO HAVE** existing facilities within the project limits.

(____) We **DO NOT HAVE** existing facilities within the project limits.

(____) We **HAVE** PROPOSED facilities planned within the project limits.

(____) **The following companies are tenants on/in our facilities within the project limits:**

Re: Concept Development Intersection Study for CR 670 and CR 673

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.

(_____) Design/Engineering
(_____) Construction – Some or All? _____
(__✔__) Neither – the Company will perform (or arrange to have performed) all needed work.
(_____) Not certain at this time.

Questions concerning this matter should be directed to the Design Engineer.

Thank you for your cooperation in this matter.

Sincerely,

Brian Derr, P.E.
Senior Associate, Project Manager

Attachment

c: _____ NJDOT Project Manager

_____ NJDOT Assistant Project Manager

TOWNSHIP OF VORHEES

COUNTY OF CAMDEN

Location of Comcast facilities is approximate based on existing records. Prior to any construction please request locates

Comcast existing aerial plant

Comcast existing UG plant

New Jersey State Plane Coordinate System NAD83

LINDEN AVENUE

BURNT MILL ROAD (C.R. 670)

2ND AVENUE

WHITE HORSE ROAD WEST (C.R. 673) (formerly Glendale Avenue)

WHITE HORSE ROAD (C.R. 673) (formerly Glendale Av

S 2ND STREET

1769

1340

2549

2980

10330

30' 0 30' 60'

CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

6/13/2022
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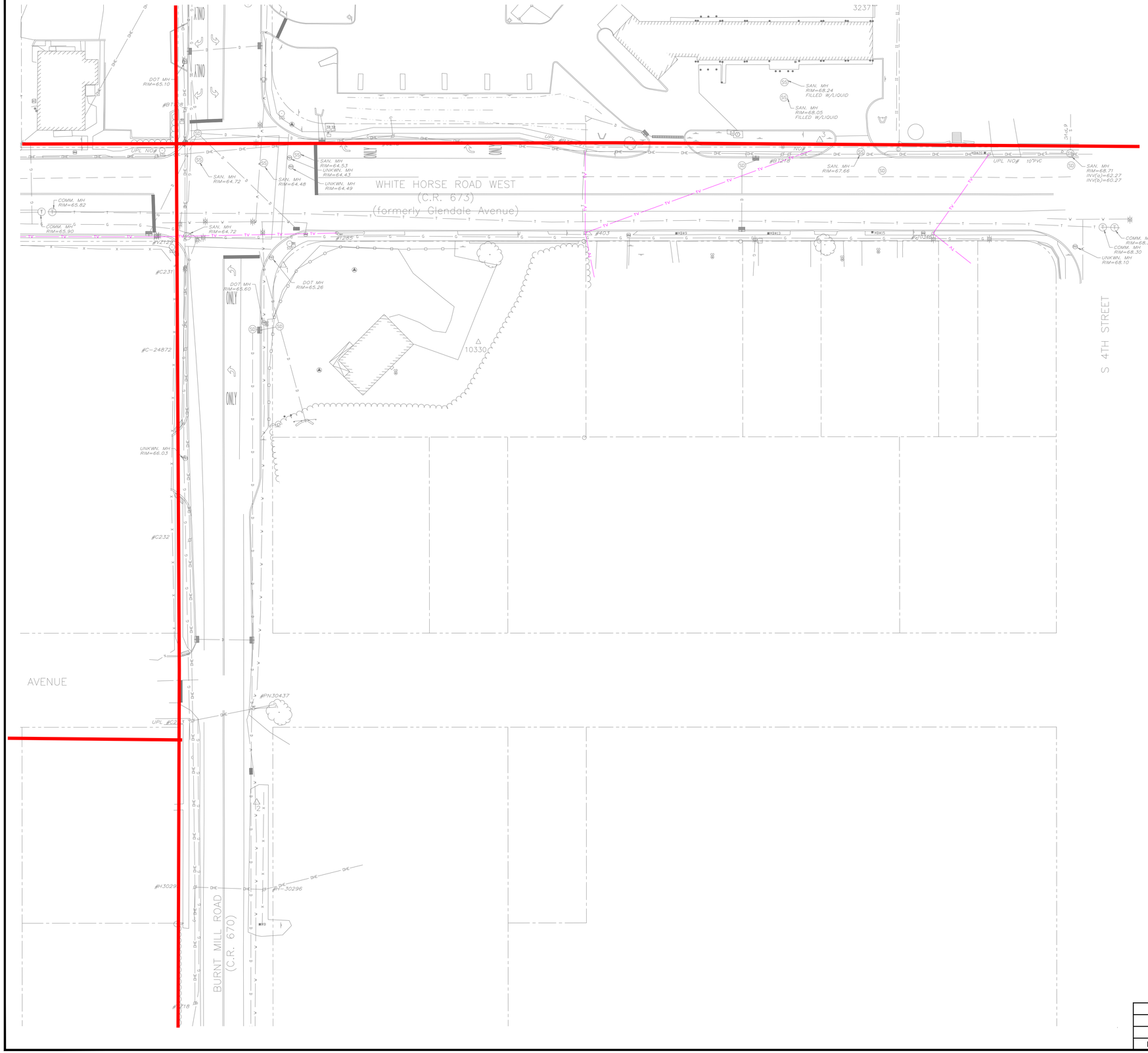
TOWNSHIP OF VORHEES

COUNTY OF CAMDEN



New Jersey State Plane Coordinate System NAD83

Location of Comcast facilities is approximate based on existing records. Prior to any construction please request locates

Comcast existing aerial plant

Comcast existing UG plant

30' 0 30' 60'

U–
U–

CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

6/13/2022 NCS-_MT.ctb
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Patel, Kush

From: Melissa A Hazelton <Melissa.Hazelton@amwater.com>
Sent: Monday, June 20, 2022 12:17 PM
To: Patel, Kush
Cc: Derr, Brian
Subject: [EXTERNAL] RE: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673
Attachments: NJDOT - Burnt Mill Rd and White Horse Pike - Voorhees.pdf

Please see the attached.

Thank you.

Melissa A. Hazelton *(she/her)*
Engineering Project Specialist
New Jersey American Water Company, Inc.
One Water Street
Camden, NJ 08102
P: 856-955-4403
E: melissa.hazelton@amwater.com

American Water Proud
LGBTQ+ EBRG

From: Patel, Kush <KPatel3@jmt.com>
Sent: Thursday, June 16, 2022 11:28 AM
To: Melissa A Hazelton <Melissa.Hazelton@amwater.com>
Cc: Derr, Brian <BDerr@jmt.com>
Subject: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Good morning,

JMT is conducting a concept development study for the DVRPC for the above referenced project. Attached you fill find a utility verification letter and plan.

If you have any questions, please reach out to me or Brian Derr at BDerr@jmt.com.

Thank you,
Kush Patel

Johnson, Mirmiran & Thompson, Inc.
An Employee-Owned Company

Kush Patel, E.I.T.
Design Engineer

1200 Lenox Drive, Suite 101
Trenton, New Jersey 08648
P. 609-512-3427
Kpatel3@jmt.com

Please consider the environment before printing this e-mail

State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DIANE GUTIERREZ-SCACCETTI
Commissioner

Date: June 16th, 2022

Melissa Hazelton
Engineering Specialist
NJ American Water Company
1 Water Street
Camden, NJ 08102

Re:
Burnt Mill Road & White Horse Road
Concept Development Intersection Study
for CR 670 and CR 673
Vorhees Township, Camden County

Project Designer:
Johnson, Mirmiran & Thompson
1200 Lenox Dr, Suite 101
ATTN: Brian Derr
609-512-3430
BDerr@jmt.com

Dear Ms. Hazelton,

The New Jersey Department of Transportation (NJDOT) has engaged us to complete the *Concept Development Study* for a project known as Concept Development Intersection Study for CR 670 and CR 673**.** The project consists of design improvements for the intersection of Burnt Mill Road and White Horse Road in Vorhees Township, Camden County. A project location map and brief project description are attached to give you a better understanding of the work that may be proposed for this project. Based upon these attachments, please provide the amount of Preliminary Engineering charges you may incur. The NJDOT will set up funding for these charges and will reimburse you through a *Change Order* if additional funding is necessary. A Preliminary Engineering estimate will be projected for your Company if no response is received after ***July 16th***.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **NJ American Water Company** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Re: Concept Development Intersection Study for CR 670 and CR 673

Should you have existing or proposed plans within the project limits, it is necessary for you to notify us.

Please complete the following questionnaire and return it to the Designer's Engineer by ***July 16th, 2022***. Please return the questionnaire by mail, email or FAX.

(X) The Company Engineer to be contacted is:

Name Melissa Hazelton
Company New Jersey American Water Company
Title Engineering Project Specialist
Address One Water Street
Camden, NJ 08102

Tel:
Fax:
Email:

(X) The UTILITY AGREEMENT shall be sent to the following person:

(X) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax:
Email:

(X) **The amount of Preliminary Engineering funding needed will be $** 5,000
(**This amount is only an estimate**)

(X) We **DO HAVE** existing facilities within the project limits.

( ) We **DO NOT HAVE** existing facilities within the project limits.

( ) We **HAVE** PROPOSED facilities planned within the project limits.

( ) **The following companies are tenants on/in our facilities within the project limits:**

Re: Concept Development Intersection Study for CR 670 and CR 673

(__X) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.

(__X) Design/Engineering
(__X) Construction – Some or All?
(_____) Neither – the Company will perform (or arrange to have performed) all needed work.
(_____) Not certain at this time.

TBD - Any work performed on NJAW assets mut be completed by a NJAW approved contractor.

Questions concerning this matter should be directed to the Design Engineer.

Thank you for your cooperation in this matter.

Sincerely,

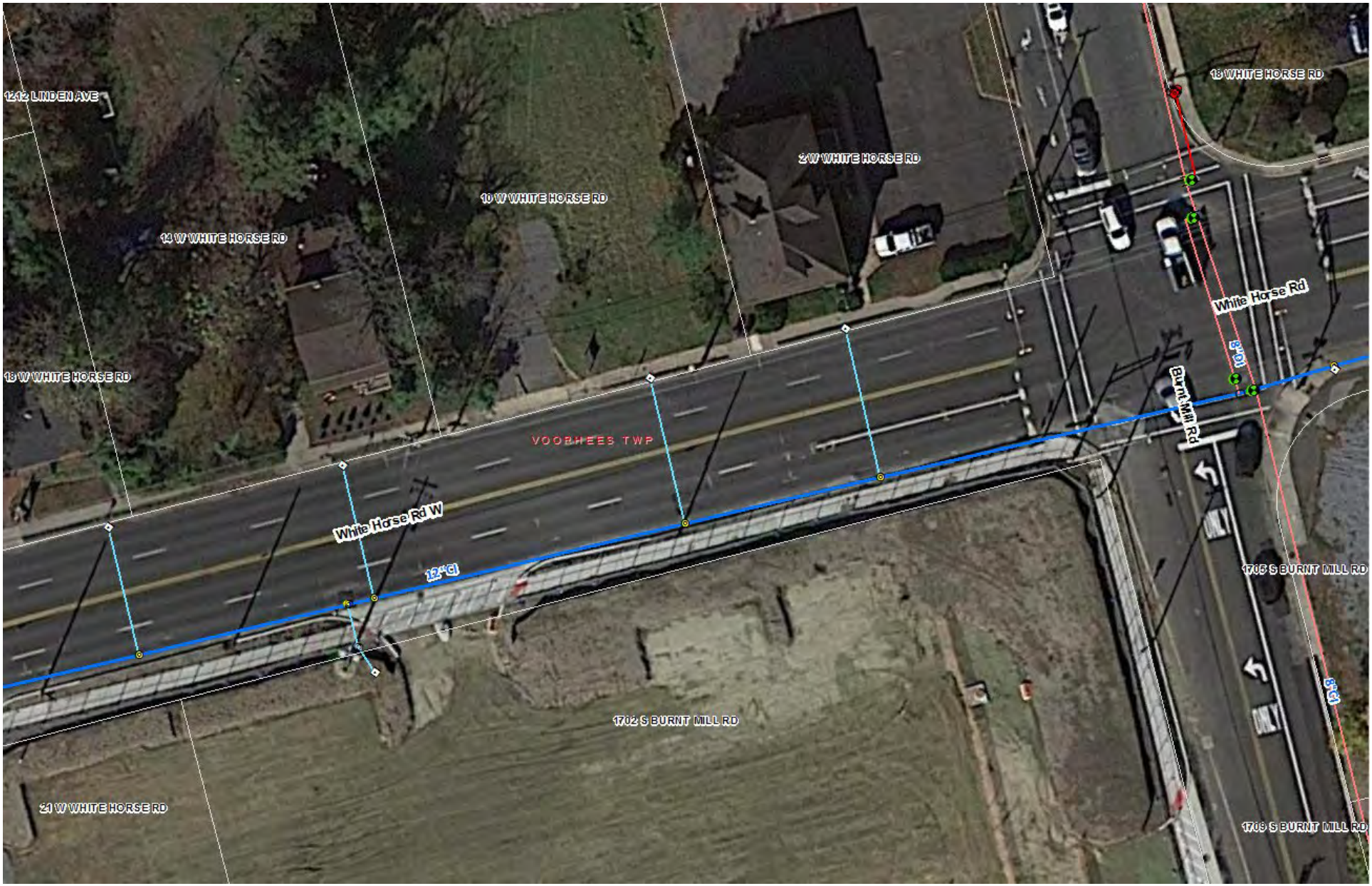
Brian Derr, P.E.
Senior Associate, Project Manager

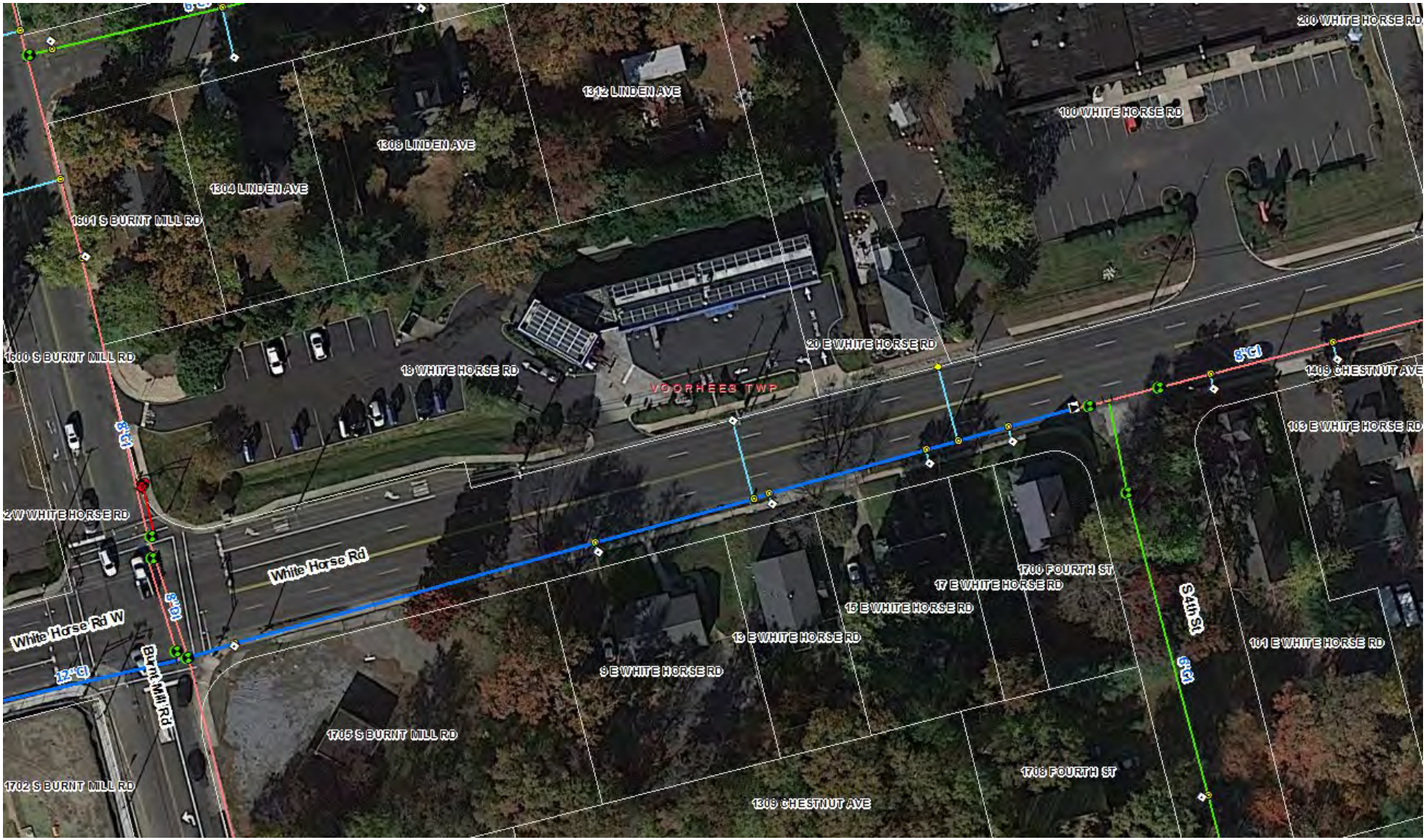
Attachment

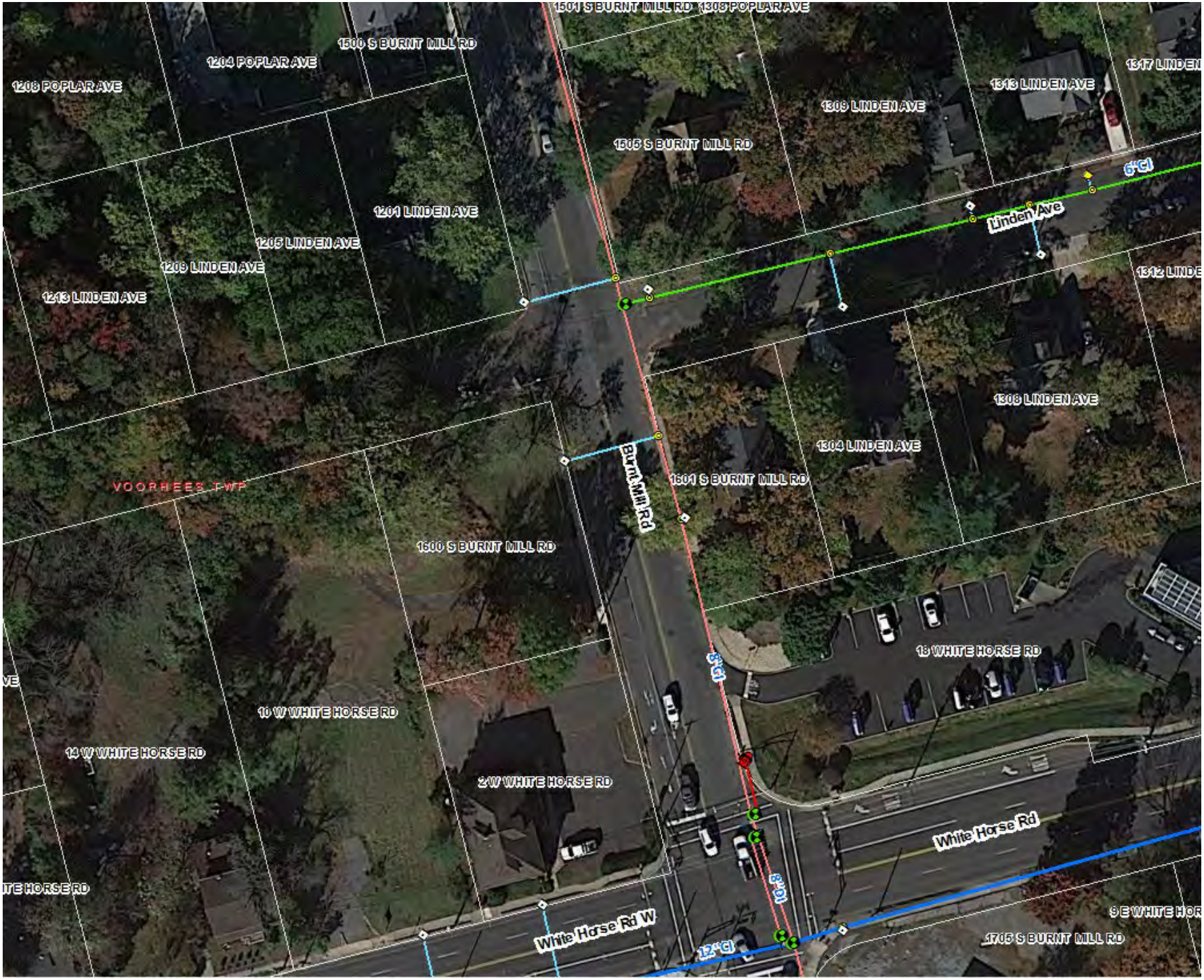
c: _____ NJDOT Project Manager

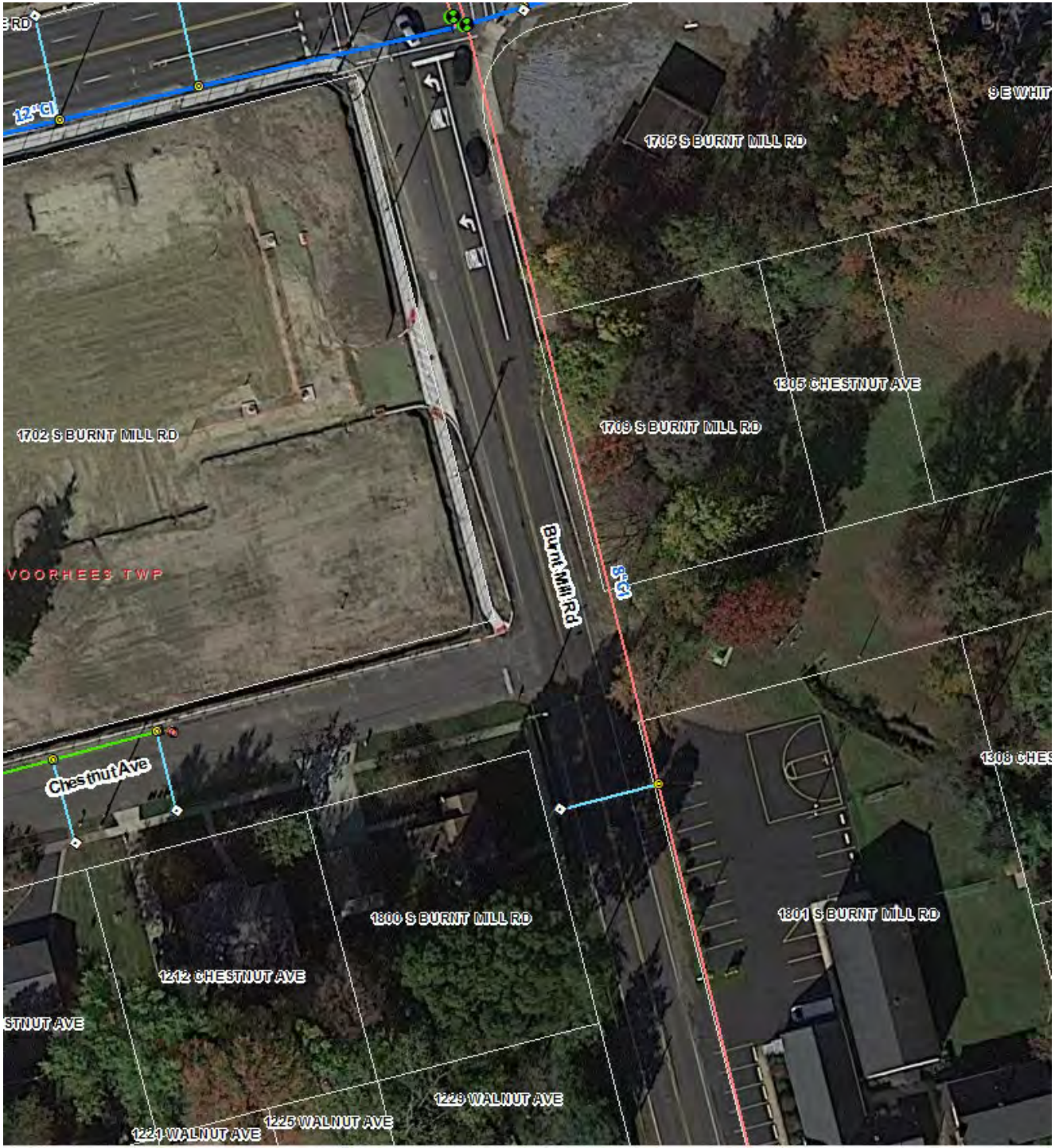
_____ NJDOT Assistant Project Manager

White Horse Rd & Burnt Mill Rd – Voorhees Twp


1212 LINDEN AVE
18 WHITE HORSE RD
2 W WHITE HORSE RD
10 W WHITE HORSE RD
14 W WHITE HORSE RD
White Horse Rd
8" DI
18 W WHITE HORSE RD
Burnt Mill Rd
VOORHEES TWP
White Horse Rd W
12" CI
1705 S BURNT MILL RD
8" CI
1702 S BURNT MILL RD
21 W WHITE HORSE RD
1705 S BURNT MILL RD


200 WHITE HORSE RD
1312 LINDEN AVE
100 WHITE HORSE RD
1308 LINDEN AVE
1304 LINDEN AVE
1601 S BURNT MILL RD
1600 S BURNT MILL RD
13 WHITE HORSE RD
VOORHEES TWP
20 E WHITE HORSE RD
8"CI
1409 CHESTNUT AVE
103 E WHITE HORSE RD
2 W WHITE HORSE RD
White Horse Rd
1700 FOURTH ST
17 E WHITE HORSE RD
15 E WHITE HORSE RD
S 4th St
White Horse Rd W
12"CI
Burnt Mill Rd
13 E WHITE HORSE RD
101 E WHITE HORSE RD
9 E WHITE HORSE RD
1705 S BURNT MILL RD
1708 FOURTH ST
1702 S BURNT MILL RD
1309 CHESTNUT AVE


1501 S BURNT MILL RD
1308 POPLAR AVE
1500 S BURNT MILL RD
1204 POPLAR AVE
1208 POPLAR AVE
1313 LINDEN AVE
1309 LINDEN AVE
1505 S BURNT MILL RD
6"CI
Linden Ave
1201 LINDEN AVE
1205 LINDEN AVE
1209 LINDEN AVE
1213 LINDEN AVE
1312 LINDE
1308 LINDEN AVE
1304 LINDEN AVE
Burnt Mill Rd
1601 S BURNT MILL RD
VOORHEES T-WP
1600 S BURNT MILL RD
8"CI
13 WHITE HORSE RD
10 W WHITE HORSE RD
14 W WHITE HORSE RD
2 W WHITE HORSE RD
White Horse Rd
10"CI
White Horse Rd W
12"CI
9 E WHITE HOR
1705 S BURNT MILL RD


1705 S BURNT MILL RD
1305 CHESTNUT AVE
1703 S BURNT MILL RD
1702 S BURNT MILL RD
VOORHEES TWP
Burnt Mill Rd
Chestnut Ave
1800 S BURNT MILL RD
1801 S BURNT MILL RD
1212 CHESTNUT AVE
1228 WALNUT AVE
1225 WALNUT AVE
1221 WALNUT AVE

TOWNSHIP OF VORHEES

COUNTY OF CAMDEN

New Jersey State Plane Coordinate System NAD83

LINDEN AVENUE

BURNT MILL ROAD (C.R. 670)

2ND AVENUE

WHITE HORSE ROAD WEST (C.R. 673) (formerly Glendale Avenue)

WHITE HORSE ROAD (C.R. 673) (formerly Glendale Av

S 2ND STREET

ONLY

30' 0 30' 60'

CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

6/13/2022
NCS-MT.ctb
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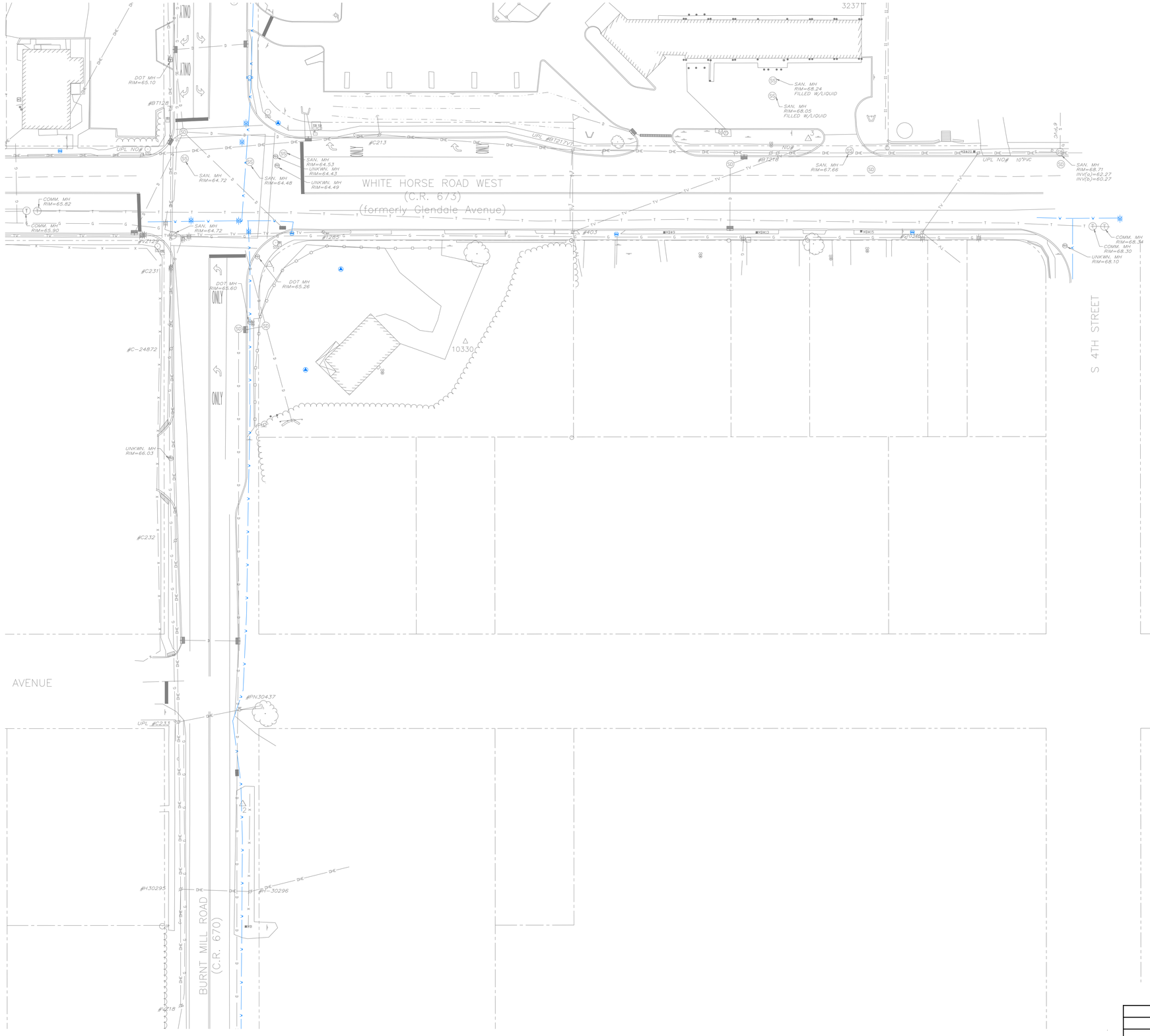
TOWNSHIP OF VORHEES

COUNTY OF CAMDEN



30' 0 30' 60'

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CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

6/13/2022 NCS_MT.ctb
Q:\2021\21038.38_001_Concept_Development\CADD\Utilities\Utility Verification\NJ American Water\NJ American Water.dwg

Patel, Kush

From: Snyder, Jessica <jsnyder@sjindustries.com>
Sent: Wednesday, July 20, 2022 11:24 AM
To: Patel, Kush
Cc: Derr, Brian
Subject: [EXTERNAL] RE: EXTERNAL: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673
Attachments: BurntMillRoad1656504993101.pdf

Hello,

Please see the attached marked-up designs regarding the current location of South Jersey Gas' facilities based on the plans that you have sent us. These designs have been updated to the best of South Jersey Gas' abilities based on the records that we have available to us. Our facilities are typically installed at a depth of 24-36" below grade, although test holes will be required to determine exact depth. As always, we ask that you please remember to conduct mark-outs of our gas mains prior to doing any excavation work.

Please note that we would like to exercise our valves and bring our valve boxes up to grade one week prior to final paving. We request that you include our Waterford Division Asset Supervisor, Darren Capano (dcapano@sjindustries.com), in any pre-construction meetings. During the pre-construction meetings we ask that you notify us on the awarded contractor. In the event that the valve boxes/lids are damaged during the course of construction, please contact Darren Capano at (dcapano@sjindustries.com).

If you have any further questions or concerns, please feel free to email me.

We have a proposed project to replace our facilities prior to paving. Please coordinate with our Waterford Construction Supervisor, Monika Pawelska-Stewart (mstewart@sjindustries.com). As well as our Design Engineer, Shalyn Solomon (sbrangman@sjindustries.com). Reference number for this project is WO# **4410556.**

Thank you,

Jessica Snyder
Records Specialist Associate | *Utility Shared Services*
C: 609-635-5613
T: 609-561-9000 ext. 4029/ 609-572-4029
jsnyder@sjindustries.com

From: Patel, Kush <KPatel3@jmt.com>
Sent: Thursday, June 16, 2022 11:28 AM
To: Oliva, Jonathan <joliva@sjindustries.com>
Cc: Derr, Brian <BDerr@jmt.com>
Subject: EXTERNAL: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Good morning,

JMT is conducting a concept development study for the DVRPC for the above referenced project. Attached you fill find a utility verification letter and plan.

If you have any questions, please reach out to me or Brian Derr at BDerr@jmt.com.

Thank you,
Kush Patel

Johnson, Mirmiran & Thompson, Inc.
An Employee-Owned Company

Kush Patel, E.I.T.
Design Engineer

1200 Lenox Drive, Suite 101
Trenton, New Jersey 08648
P. 609-512-3427
Kpatel3@jmt.com


Please consider the environment before printing this e-mail

TOWNSHIP OF VORHEES

COUNTY OF CAMDEN

New Jersey State Plane Coordinate System NAD83

LINDEN AVENUE

BURNT MILL ROAD (C.R. 670)

2ND AVENUE

S 2ND STREET

WHITE HORSE ROAD WEST (C.R. 673) (formerly Glendale Avenue)

WHITE HORSE ROAD (C.R. 673) (formerly Glendale Av

21' TO ℄

4" W.S. H.P.

18' TO ℄

VALVE

27' TO ℄

6" P.P. H.P.

VALVE

6" W.S. H.P.

2" P.P. H.P.

27' TO ℄

30' 0 30' 60'

CAMDEN COUNTY ENGINEERING

UTILITY PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

Patel, Kush

From: Laurizio, Jeremiah J <Jeremiah.Laurizio@pseg.com>
Sent: Wednesday, June 29, 2022 4:47 PM
To: Patel, Kush
Cc: Derr, Brian
Subject: [EXTERNAL] RE: DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673
Attachments: NJDOT. Intersection of Burnt Mill Rd White Horse Rd. Johnson Mirmiran Thompson. No Involvement. Electric. 06.28.2022.pdf; NJDOT. Intersection of Burnt Mill Rd White Horse Rd. Johnson Mirmiran Thompson. No Involvement. Gas. 06.28.2022.pdf

Kush -
See attached documents for the DVRPC – Camden County Concept Development Study - CR 670 and CR673 Project.

We DO NOT HAVE existing electric facilities within the project limits.
We DO NOT HAVE existing gas facilities within the project limits.

Sincerely,

Jerry Laurizio
Sr. Project Manager
PSE&G
Electric Transmission & Distribution – Projects & Construction
Office: (908) 412-2208
Cell: (973) 900-1383
Jeremiah.Laurizio@PSEG.com

From: Patel, Kush <KPatel3@jmt.com>
Sent: Thursday, June 16, 2022 11:28 AM
To: Laurizio, Jeremiah J <Jeremiah.Laurizio@pseg.com>
Cc: Derr, Brian <BDerr@jmt.com>
Subject: [EXTERNAL] DVRPC - Camden County - Concept Development Study - Intersection of CR 670/CR 673

Good morning,

JMT is conducting a concept development study for the DVRPC for the above referenced project. Attached you fill find a utility verification letter and plan.

If you have any questions, please reach out to me or Brian Derr at BDerr@jmt.com.

Thank you,

Kush Patel

Johnson, Mirmiran & Thompson, Inc.
An Employee-Owned Company

Kush Patel, E.I.T.
Design Engineer

1200 Lenox Drive, Suite 101
Trenton, New Jersey 08648
P. 609-512-3427
Kpatel3@jmt.com

Please consider the environment before printing this e-mail

Public Service Electric and Gas Company
Delivery Projects and Construction
4000 Hadley Road, South Plainfield, NJ 07080

June 28, 2022

Brian Derr, P.E.
Senior Associate, Project Manager
Johnson, Mirmiran & Thompson
1200 Lenox Dr., Suite 101
Trenton, NJ 08648

RE: Burnt Mill Road (CR 670) & White Horse Road (CR 673)
Concept Development Intersection Study
Voorhees Township, Camden County
UPC No.: Unknown

Dear Mr. Derr:

I have received your e-mail request and location relative to the above referenced project. A cursory review of our records indicates we ***do not have*** any Electric facilities within the project limits.

Should you have any questions or concerns, please feel free to contact me directly at the above address, by phone at (908) 412-2208, or via e-mail at Jeremiah.Laurizio@pseg.com.

Sincerely,

Jerry Laurizio
Sr. Project Manager
Public Service Electric & Gas
Electric Transmission & Distribution – Projects & Construction

Public Service Electric and Gas Company
Delivery Projects and Construction
4000 Hadley Road, South Plainfield, NJ 07080

June 28, 2022

Brian Derr, P.E.
Senior Associate, Project Manager
Johnson, Mirmiran & Thompson
1200 Lenox Dr., Suite 101
Trenton, NJ 08648

RE: Burnt Mill Road (CR 670) & White Horse Road (CR 673)
Concept Development Intersection Study
Voorhees Township, Camden County
UPC No.: Unknown

Dear Mr. Derr:

I have received your e-mail request and location relative to the above referenced project. A cursory review of our records indicates we ***do not have*** any Gas facilities within the project limits.

Should you have any questions or concerns, please feel free to contact me directly at the above address, by phone at (908) 412-2208, or via e-mail at Jeremiah.Laurizio@pseg.com.

Sincerely,

Jerry Laurizio
Sr. Project Manager
Public Service Electric & Gas
Electric Transmission & Distribution – Projects & Construction

Public Service Electric and Gas Company
Delivery Projects and Construction
4000 Hadley Road, South Plainfield, NJ 07080

APPENDIX L

Resolutions of Support

CAMDEN COUNTY BOARD OF COMMISSIONERS

Commissioners Meeting Agenda

Commissioner Meeting Venue:

Date: Jan 18, 2024 - 12:00 PM

Location: Camden County Courthouse
6th Floor Meeting Room
520 Market Street
Camden, NJ 08102

Agenda: Resolution of Support for the Preferred Preliminary Alternative selected as a result of the Local Concept Development Study for the intersection of Burnt Mill Road (CR 670) and White Horse Road (CR 673), in the Township of Voorhees.

Official Resolution#	**2024-00061**
Meeting Date	01/18/2024
Introduced Date	01/18/2024
Adopted Date	01/18/2024
Agenda Item	h-6
Result	Adopted

COUNTY COMMISSIONER	PRES.	ABS.	MOVE	SEC	AYE	NAY	ABST.
Dyer	✓			✓	✓		
Kane	✓				✓		
Nash	✓				✓		
Betteridge	✓				✓		
Young	✓		✓		✓		
McDonnell	✓				✓		
Cappelli, Jr.	✓				✓		

RESOLUTION

RESOLUTION OF SUPPORT FOR THE PREFERRED PRELIMINARY ALTERNATIVE SELECTED AS A RESULT OF THE LOCAL CONCEPT DEVELOPMENT STUDY FOR THE INTERSECTION OF BURNT MILL ROAD (CR 670) AND WHITE HORSE ROAD (CR 673), IN THE TOWNSHIP OF VOORHEES

WHEREAS, the Delaware Valley Regional Planning Commission (herein after referred to as "DVRPC") on behalf of the County of Camden Department of Public Works (hereinafter referred to as "County") received a Federal Highway Administration grant to complete a Concept Development Study for the intersection of Burnt Mill Road (CR 670) and White Horse Road (CR 673) in the Township of Voorhees, Camden County, New Jersey; and

WHEREAS, the goal of the project is to provide feasible design alternatives and ultimately select a Preferred Alternative Improvement Concept that best addresses and alleviates the high crash rate and improves traffic safety at the intersection, while minimizing environmental, historic, utility, right-of-way and traffic impacts; and

WHEREAS, through a community-driven public process, Preferred Preliminary Alternative (PPA) No. 2 was selected; and

WHEREAS, the County of Camden agrees that Preferred Preliminary Alternative No. 2 meets the goals and objectives of the project; now, therefore,

BE IT RESOLVED by the Camden County Board of Commissioners, that the Board endorses the selection of Alternative No. 2 for as the Preferred Preliminary Alternative as proposed in the concept development study prepared by Johnson, Mirmiran & Thompson, Inc., on behalf of the County of Camden.

Introduced on: January 18, 2024
Adopted on: January 18, 2024
Official Resolution#: 2024-00061

RESOLUTION

MVW/hs
Z:Files-General/Highway Dept/Misc. - 2024
Resol of Supp PPA for Inter of Burnt Mill Rd & White Horse Rd #4076 - 1.18.24

Introduced on: January 18, 2024
Adopted on: January 18, 2024
Official Resolution#: 2024-00061

State of New Jersey
DEPARTMENT OF TRANSPORTATION
1035 Parkway Avenue
P.O Box 600
Trenton, New Jersey 08625

PHILIP D. MURPHY
Governor

TAHESHA WAY
Lt. Governor

FRANCIS K. O'CONNOR
Commissioner

October 2, 2024

Mr. John J. Coscia Jr.
Manager, Office of Project Implementation
Delaware Valley Regional Planning Commission
190 N. Independence Mall West
Philadelphia, PA 19106-1520

REF: **IRC APPROVAL LETTER**
Intersection Study for CR 670 (Burnt Mill Road) and CR 673 (White Horse Road)
Voorhees Township, Camden County
Interagency Review Committee (IRC) Meeting

Dear Mr. Coscia:

On July 16, 2024, an Interagency Review Committee (IRC) meeting convened in order to determine the eligibility of advancing the subject project to the subsequent phase, Preliminary Engineering. The recommendation of the Committee is approval to proceed to the Preliminary Engineering phase for the Intersection Study for CR 670 (Burnt Mill Road) and CR 673 (White Horse Road).

The expected Environmental Document is a Categorical Exclusion Document (CED). The project sponsor should submit a draft Request for Proposals (RFP) to the Division of Local Aid and Economic Development for environmental input into the RFP.

The project sponsor must complete the first two sections of the current CED form and submit it to the Division of Local Aid and Economic Development along with plans and documentation of public outreach in the Preliminary Engineering Phase. Permits, if required, will be obtained by the project sponsor during Final Design.

Should you require any additional information, please contact Thomas Berryman, Manager District 4, at (856) 414-8413.

Sincerely,

Deval Desai,
Director
Division of Local Aid and Economic Development

c: Laine Rankins, Assistant Commissioner, Local Resources & Economic Development
Pam Garrett NJDOT
Squibb, Steven, FHWA
Thomas Berryman, Local Aid District 4
Vijesh Darji, Local Aid District 4
Bert Gonzales, Local Aid District 4

APPENDIX M

Department & Local Officials Communications

MEMORANDUM

TO: All Attendees

DATE: February 18, 2022

FROM: Chris Watts

PROJECT: Camden County Concept Development Intersection Study for CR 670 and CR 673

JMT JOB NO.: 21-03638-001

RE: Kickoff Meeting

A virtual kickoff meeting was held on February 15, 2022 at 2:00 PM to discuss the initiation of the Camden County Concept Development Study for Burnt Mill Road (CR 670) and White Horse Road (CR 673). The following were in attendance:

Name	Organization	Email
John Coscia Jr	DVRPC	jcosciajr@dvrpc.org
Kwan Hui	DVRPC	khui@dvrpc.org
Vibhuti Bhimani	Camden County	Vibhuti.Bhimani@camdencounty.com
Andrew Levecchia	Camden County	andrew.levecchia@camdencounty.com
Sean Warren	NJDOT	sean.warren@dot.nj.gov
Brian Strizki	JMT	bstrizki@jmt.com
Sam Fisher	JMT	sfisher@jmt.com
Brian Derr	JMT	bderr@jmt.com
Chris Watts	JMT	cwatts@jmt.com

The meeting began with Introductions from everyone in attendance. Mr. Coscia requested Bert Gonzalez and Lauren Coe be included in the communications and meeting invites involved in this project.

Ms. Hui noted that this project has already been assigned the following project numbers:

DB#: D2213

UPC#: 223170

Mr. Strizki introduced the agenda and handed off to Mr. Watts, JMT's Project Manager, to run through the agenda items (see attached).

Mr. Watts detailed JMT's Project Overview and the following comments were made:

A. High Crash Area: The latest crash data used for this intersection is from 2015-2017 which shows many side swiping accidents due to left turns. Crashes are a major concern and should be addressed in the analysis.

B. Close vicinity to public transportation: There is a nearby PATCO station and NJ Transit busses have routes through this intersection. The NW corner of the intersection (Atlantic Coin and Jewelry Exchange) has a small turning radius and the alternative should include improvements for this turning movement.

C. Near Vorhees Town Center: The town center is nearby and should be included in the traffic analysis.

D. Nearby project on CR 673: Mr. Levecchia noted they do not have access to the full plans and therefore cannot give them to JMT; however, it was noted whatever plans Mr. Levecchia has can be forwarded to JMT.

E. Wawa on south side redeveloped into a super Wawa: JMT has already obtained plans from Dynamic Engineering who is working with Wawa to redevelop the site and will obtain traffic count data from them as well.

Mr. Watts detailed JMT's LCD Phase and the following comments were made:

A. Data Collection: Border of survey limits should be marked up on plans and included in the "Right-of-Entry" letters. The environmental screening should be developed and sent to Mr. Coscia to review. Mr. Levecchia stated there is a culvert behind the abandoned gas station property that needs to be accounted for in survey and environmental. The traffic data collection should include Dynamic's previous traffic count data and should consider the additional impacts the new gas station at the Wawa will have on the future traffic impacts.

B. Purpose and Need Statement: Will be included

C. Community Outreach: Very important to this project. Mr. Coscia expressed he would like to have two Local Official Briefings (LOB's), 2 Public Information Centers (PIC's). DOT normally coordinates the first local officials briefing. Rough, preliminary alternatives should be presented at the first LOB. After first PIC, should meet with DOT subject matter experts regarding the alternatives.

D. Alternatives Analysis: Multiple alternatives should be developed by evaluating applicability of the FHWA's Proven Safety Countermeasures; specifically, the use of jug handles to alleviate the left turn crashes.

E. NEPA classification: Should be established and submitted.

F. PPA selection: Will be selected

G. Concept Development Report: A draft CD report should be submitted for review, then the final should be submitted afterwards.

H. PE Scope Statement: Mr. Coscia noted the PE Scope Statement is no longer required for the County's projects, but for this project they would like the PE Scope Statement to be included.

Mr. Coscia reviewed the monthly progress reports and invoicing:

This project is federally funded, so monthly invoicing is important to maintain throughout this project and must keep careful track of hours. The monthly invoicing report should be submitted to DVRPC and include percent of work complete vs. percent of budget spent on the cover letter. Invoices can be submitted via pdf.

Mr. Strizki noted the 12-month schedule to complete this project:

> Mr. Coscia requested JMT to update the schedule with the actual Notice to Proceed date and see the updated timeline. Mr. Coscia noted scheduling the meetings should be a priority due to the relatively short timeline.

Mr. Watts reiterated the next steps for this project:

A. Right-of-Entry Letters: Limits of survey will be established, and letters will be sent out
B. Survey: Survey will be performed based on the limits of survey noted in the letters mentioned above.
C. Environmental Screening: Should be developed and sent to Mr. Coscia to review. Mr. Levecchia stated there is a culvert behind the abandoned gas station property that needs to be accounted for in survey and environmental.
D. Traffic Data Collection: Should include Dynamic's previous traffic count data and should consider the additional impacts the new gas station at the wawa will have on the future traffic impacts.

During the Open Discussion period, the following points were discussed:

- Mr. Levecchia mentioned this intersection should be analyzed according to the County's Complete Street Program. Burnt Mill Road is a potential candidate for a bicycle facility, so the conceptual alternatives should reflect this potential bicycle facility. Mr. Levecchia stated he would send this information to JMT.
- Mr. Coscia requested scheduling a monthly call to discuss progress. A monthly meeting time needs to be established and the recurring meeting needs to be set up.
- Mr. Levecchia stated he would look for any as-builts the County may have for this intersection. Mr. Levecchia suggested JMT review the DVRPC website for historical traffic counts from the area. For any traffic counts JMT performs, the results should be sent to the County.
- If any potential permitting issues may be encountered, these should be included in the CD report.
- Mr. Derr asked if there are any specific alternatives JMT should consider?
    - Mr. Levecchia responded a smaller jughandle in the abandoned gas station should be considered.
- Mr. Coscia asked JMT to review the crash data and provide proven safety countermeasures where applicable.
- Ms. Bhimani noted that there is a resurfacing project currently being designed for CR 670 (Burnt Mill Road) between White Horse Road and Somerdale Road. There will need to be coordination between the two projects to determine where one ends and one begins.

Following the meeting, the action items are as follows:

- JMT
    - Will send out updated schedule
    - Will send out a monthly virtual teams meeting
- Camden County/DVRPC

- Will send over any existing as-builts or studies for the intersection

Chris Watts

Chris Watts, PE
Project Manager

2/18/2022

Date

MEMORANDUM

TO: All Meeting Attendees
DATE: August 24, 2022
FROM: Brian Derr, PE
PROJECT: Concept Development - Intersection of White Horse Road and Burnt Mill Road
JMT JOB NO.: 21-03638-001
RE: August 23, 2022 Local Officials Briefing

A meeting was held on Microsoft Teams on August 23, 2022 at 1:00 pm for the above referenced project. The following people were in attendance:

Name	Organization	E-mail
Joseph Hale	Voorhees Township	jhale@voorheesnj.com
Jeremy Noll, PE	ERI	jnoll@erinj.com
Nicole Pace-Addeo	Stokes Creative Group	npace@stokescg.com
John Coscia	DVRPC	jcosciajr@dvrpc.com
Andrew Levecchia	Camden County	Andrew.Levecchia@camdencounty.com
Vibhuti Bhimani	Camden County	Vibhuti.Bhimani@camdencounty.com
Kevin Becica, PE	Camden County	Kevin.Becica@camdencounty.com
Brian Derr, PE	JMT	bderr@jmt.com
Brian Strizki, PE	JMT	bstrizki@jmt.com
David Long, PE	JMT	dlong@jmt.com
Kush Patel	JMT	kpatel3@jmt.com

General Items

- Introductions were made with everyone in attendance.
- Mr. Derr of JMT introduced the project and went over the purpose and need statement as well as introduced a few preliminary alternatives.
- Mr. Derr noted that the key goal of the project is to make the intersection safer for all modes of transportation and reduce the number of accidents.

- Three alternatives were presented in the meeting:
    - Alternative 1: Road widening & Designated Left Turn Lanes
    - Alternative 2: Reverse Jug Handles
    - Alternative 3: Roundabout

- There are businesses at all four corners of the intersection: Wawa, Atlantic Coin & Jewelry Exchange, White Horse Car Wash & Pet Wash, and abandoned Shell gas station.

- It was discussed that ROW and environmental impacts are major constraints to consider. South of the intersection, there is a stream that enters the existing drainage facilities that are within the intersection.

- There are contamination issues at the abandoned gas station. ROW takes of this property should be kept to a minimum as they will likely trigger hazardous waste investigation.

- Mr. Noll noted that there have been complaints of speeding vehicles on White Horse Road N. It is important to get feedback from these residents regarding a possible widening of the roadway.

- Southwest of the intersection, the bridge over PATCO is being replaced. It is anticipated that it will not cause any impact to the alignment of White Horse Road at the intersection with Burnt Mill Road.

- There are NJ Transit bus stops on Burnt Mill Road N; thus, turn radii on that leg of the intersection will need to be designed accordingly.

- Possible pedestrian and bicycle – friendly additions were discussed
    - Multi-use path on White Horse Road
    - Adding a bicycle lane on Burnt Mill Road
    - Lead bicyclists around the intersection by using Pine Ave and Gibbsboro Road

- There were comments regarding the schedule of the final submission of the CD report
    - An additional Public Information Center (PIC) should be scheduled after the selection of the PPA
    - Due to coordination with NJDOT and many other agencies, a Spring/Summer 2023 submission is expected, with the design phase to follow.

- Mr. Derr will forward a PDF copy of the presentation to all attendees. This should be kept private for the time being until the alternatives are further vetted.

The above represents a true and accurate account of the discussion during this meeting to the best of my knowledge. If there are any conflicts, misrepresentations, or omissions with the above statements, please contact the undersigned within five (5) days of this date.

8-24-2022

Brian Derr, PE — Date

Project Manager

Copy:

All Meeting Attendees

MEMORANDUM

TO: All Meeting Attendees
DATE: June 7, 2023
FROM: Kush Patel, EIT
PROJECT: Concept Development – Intersection of White Horse Road and Burnt Mill Road
JMT JOB NO.: 21-03638-001
RE: Monthly Meeting with DVRPC & Camden County

A meeting was held via Microsoft Teams on June 7th, 2023 at 2:00 pm for the above referenced project. The following people were in attendance:

Name	Organization	E-mail
James Winckowski, PE	Camden County	James.Winckowski@camdencounty.com
Brian Derr, PE	JMT	bderr@jmt.com
Lindsay Klesitz, PE	JMT	lklesitz@jmt.com
Kush Patel, EIT	JMT	kpatel3@jmt.com

The following items were discussed:

Project Overview

- The team recapped the meeting held at Atlantic Coin & Jeweler on May 23rd. A follow-up meeting is scheduled for June 13th, 2023 at 2:00 pm.
- The purpose of these two meetings is to clarify with the business what impacts are expected to the property, and how the County can mitigate any negative effects.

SME Presentation

- In March, Local Aid requested an SME list that needs to attend a meeting (TBD).
- JMT will make a list and send to Local Aid after getting County and DVRPC approval.

Project Schedule

- A tentative schedule was discussed by the team.
- SME presentation by July 2023
- Stakeholders Meeting, PIC by August 2023
- Conclusion of project by fall/winter 2023

Kush Patel

Kush Patel, EIT
Design Engineer

6/7/2023
Date

Copy: All Meeting Attendees

MEMORANDUM

TO: All Meeting Attendees
DATE: December 8th, 2023
FROM: Kush Patel
PROJECT: Concept Development – Intersection of White Horse Road and Burnt Mill Road
JMT JOB NO.: 21-03638-001
RE: Local Officials Briefing 2

A meeting was held in Voorhees, NJ at the Voorhees Town Hall on December 4th, 2023 at 2:00 pm for the above referenced project. The following people were in attendance:

Name	Organization	E-mail
Joe Hale	Voorhees Township	jhale@voorheesnj.com
Jeremy Noll	Voorhees Township	jnoll@erinj.com
Joseph Kavano	Voorhees Police	jkavano@vtpd.com
Stephen Bruccoleri	Voorhees Police	sbruccoleri@vtpd.com
Robert Harris	Camden County	Robert.Harris@camdencounty.com
Vibhuti Bhimani	Camden County	Vibhuti.Bhimani@camdencounty.com
James Winckowski	Camden County	James.Winckowski@camdencounty.com
Ilene Lampitt	Camden County	Ilene.Lampitt@camdencounty.com
Brian Derr	JMT	kpatel3@jmt.com
Kush Patel	JMT	bderr@jmt.com

The following items were discussed:

Discussion

Brian Derr from JMT presented to the attendees, and the following topics were discussed throughout the presentation.

- Did WAWA dedicate any right-of-way as part of local approval?
  - Yes WAWA has right of way dedication as a part of their local approval.

- The proposed detour route (Lucas Lane) was used during a previous project on Burnt Mill Road. Although it is a township road, it can be viable for higher vehicle volumes.

- There are no entire takes for Alternative 2, but it does require many small fee-takes along White Horse Road.

- The significant right of way impact is to the Atlantic Coin and Jewelry Exchange. Camden County and JMT have been collaborating with the property owner to determine design considerations for when the project enters the preliminary design phase.
    - Design considerations include expanded driveway, resurfaced parking lot, guide rail in front of the building, business sign relocation.
    - The Reilly property has a pre-existing, non-conforming building.
    - An agreement can be made between the township and the property owner for future improvements because changes to the property are not the fault of the owner.

- Stormwater management is not required because there will be less than a quarter-acre of net impervious area and less than an acre of total disturbance.

- What is the purpose of the raised median island?
    - To control left turn access into/out of WAWA because this movement has caused accidents in the past. Alternative 2 will force drivers to use the third WAWA driveway on Burnt Mill Road.
    - This would be an island with a full height curb of at least 4".
    - Breaks can be allowed in the island to permit certain turn movements, but this will be analyzed in the preliminary design phase.

- Does this have any effect on the PATCO bridge project?
    - The County noted that the project limits for each project do not overlap and there is no impact to the design.
    - There is approximately 350' between the two projects. Improvements to this area will be analyzed in the preliminary design phase.
    - Possible for both projects to be scheduled for construction at similar times.

- Camden County and Voorhees Township will each provide JMT with Resolution of Support for the PPA.

Project Schedule

- The final Public Information Center is scheduled for December 12th, 2023 from 6pm to 7:30 pm via Zoom.
- Local Concept Development will conclude in 2024.

Kush Patel

Kush Patel, EIT

Design Engineer

12/8/2023

Date

Copy: All Meeting Attendees

MEMORANDUM

TO: All Meeting Attendees
DATE: November 2, 2023
FROM: Kush Patel
PROJECT: Concept Development – Intersection of White Horse Road and Burnt Mill Road
JMT JOB NO.: 21-03638-001
RE: SME Presentation to Local Aid, NJDOT, DVRPC & Camden County

A meeting was held via Microsoft Teams on November 1st, 2023 at 1:30 pm for the above referenced project. The following people were in attendance:

Name	Organization	E-mail
John Coscia	DVRPC	jcosciajr@dvrpc.com
James Winckowski	Camden County	James.Winckowski@camdencounty.com
Vibhuti Bhimani	Camden County	Vibhuti.Bhimani@camdencounty.com
Thomas Berryman	NJDOT	Thomas.Berryman@dot.nj.gov
Vijesh Darji	NJDOT	Vijesh.Darji@dot.nj.gov
Inas Ebaid	NJDOT	Inas.Ebaid@dot.nj.gov
Roy Francolino	NJDOT	Roy.Francolino@dot.nj.gov
Jeffrey Gendek	NJDOT	Jeffrey.Gendek@dot.nj.gov
Mark Hauske	NJDOT	Mark.Hauske@dot.nj.gov
Sarah Helble	NJDOT	Sarah.Helble@dot.nj.gov
Kevin Henry	NJDOT	Kevin.Henry@dot.nj.gov
Yolanda Joya-Fernandez	NJDOT	Yolanda.Fernandez@dot.nj.gov
Kokou Kouayi	NJDOT	Kokou.Kouayi@dot.nj.gov
Eeshan Krishnagiri	NJDOT	Eeshan.Krishnagiri@dot.nj.gov
Pranav Lathia	NJDOT	Pravan.Lathia@dot.nj.gov

Hemantlal Padalia	NJDOT	Hemantlal.Padalia@dot.nj.gov
Hung Tang	NJDOT	Hung.Tang@dot.nj.gov
Ryan Reali	NJDOT	Ryan.Reali@dot.nj.gov
Brian Wirtz	NJDOT	Brian.Wirtz@dot.nj.gov
Nirmin Nasef	NJDOT	Nirmin.Nasef@dot.nj.gov
Nicholas Provenzano	NJDOT	Nicholas.Provenzano@dot.nj.gov
Eric Perkuhn	NJDOT	Eric.Perkuhn@dot.nj.gov
Olayinka Olanipekun	NJDOT	Olayinka.Olanipekun@dot.nj.gov
Bakula Patel	NJDOT	Bakula.Patel@dot.nj.gov
Sophia Fox	Stokes Creative Group	sfox@stokescg.com
Brian Strizki	JMT	bstrizki@jmt.com
Sarah Liedenheimer	JMT	sleidenheimer@jmt.com
David Long	JMT	dlong@jmt.com
Brian Derr	JMT	bderr@jmt.com
Lindsay Klesitz	JMT	lklesitz@jmt.com
Kush Patel	JMT	kpatel3@jmt.com

The following items were discussed:

Project Overview

- Representatives from Local Aid, NJDOT, DVRPC, Camden County, and JMT introduced themselves.
- Brian Derr from JMT presented to the group and was followed by an open forum for questions.
- The project is in Voorhees Township, Camden County. The intersection of Burnt Mill Road (CR 670) and White Horse Road (CR 673) is a major intersection in the area because it leads to a PATCO station south of the project area and carries two NJ Transit bus routes. The intersection is ranked 5th in DVRPC and 2nd in Camden County for crash rates because of the lack of turn movement priorities, and heavy traffic due to businesses nearby.
- Four alternatives were analyzed during concept development phase:

- Alternative 1 - no build
- Alternative 2 - roadway widening with left turn lanes
- Alternative 3 - left turn jug-handles
- Alternative 4 – roundabout

It was concluded that Alternative 2 was the best option due to limited environmental impacts, limited ROW costs, and overall it best addresses the purpose and need of the project.

Discussion

The following questions were posed at the end of the presentation.

- Did WAWA dedicate any right-of-way as part of local approval?
  - WAWA submitted an application to the county planning board. That application needs to be revisited and incorporated into any WAWA impact.
- Did any alternative consider staying within the existing curbline?
  - Without the added left turn lanes, the overall LOS may remain adequate in the short term, but the existing turn movements do not perform well in the future. Exclusive left turn lanes will be able to maintain a greater LOS for projected traffic volumes.
- What is the purpose of the larger radii on the north side of the intersection?
  - There are bus routes that operate through these turn movements. Existing conditions force turning heavy vehicles to cross lane lines into oncoming traffic.
- Are there any major right-of-way takes? Any entire takes?
  - There are no entire takes, but Alternative 2 does require many small fee-takes along White Horse Road. The significant right of way impact is to the Atlantic Coin and Jewelry Exchange. Camden County and JMT have been collaborating with the property owner to determine design considerations for when the project enters the preliminary engineering phase.
  - Design considerations include-expanded driveway, resurfaced parking lot, guide rail in front of the building, business sign relocation.
- What is the purpose of the raised median island?
  - To control left turn access into/out of WAWA because this movement has caused many accidents in the past. Alternative 2 will force drivers to turn left at the intersection and use the third WAWA driveway on Burnt Mill Road.
  - During the design phase, it is imperative that oncoming traffic does not head into the median. This needs to be considered during design phase.
- Does this have any effect on the PATCO bridge project?
  - The county noted that the project limits for each project do not overlap and there is no impact to the design.
  - Also, the projects are on different timelines and so there should be no concern about both projects being under construction at the same time.
- Any access applications would need to go through the municipality not NJDOT.

Project Schedule

- Final Local Official Briefings and Stakeholder meetings will be held this winter.
- Local Concept Development will conclude in 2024.

Kush Patel

11/2/2023

Kush Patel, EIT

Date

Design Engineer

Copy: All Meeting Attendees

APPENDIX N

Cost Estimates

Camden County Routes 670 (Burnt Mill Road) & 673 (White Horse Road)
Alternative II - Left Turn Lanes

Work Type	Totals
Earthwork	$25,301.20
Pavement	$266,975.00
Culverts	N/A
Bridges	N/A
Drainage	$ 95,190.00
Incidental Items	$ 748,750.00
Landscape	$ 8,800.00
Noise Abatement	N/A
General Items	$21,970.20
PROJECT SUBTOTAL	**$1,166,986.40**

Other Items	Proj Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	$35,009.59
Maintenance of Traffic		7% of Proj. Subtotal	$81,689.05
Training		1% of Proj. Subtotal	$11,669.86
Mobilization	Project Cost (Mil.)	% of Proj. Subtotal	$116,698.64
	Less Than 1.0	10% of Proj. Subtotal	
	1.0 to 5.0	11% of Proj. Subtotal	
	5.0 to 10.0	11% of Proj. Subtotal	
	10.0 to 20.0	14% of Proj. Subtotal	
	20.0 to 30.0	15% of Proj. Subtotal	
	30.0 to 40.0	16% of Proj. Subtotal	
	40.0 and above	17% of Proj. Subtotal	
Progress Schedule	Project Cost (Mil.)	$	$5,000.00
	Less Than 1.0	$5,000	
	1.0 to 2.0	$7,000	
	2.0 to 5.0	$15,000	
	5.0 to 10.0	$25,000	
	10.0 to 20.0	$35,000	
	20.0 to 30.0	$60,000	
	30.0 to 40.0	$70,000	
	40.0 and above	$100,000	
Clearing Site	Project Cost (Mil.)	$	$25,000
	Less than 1.0	$25,000	
	1.0 to 5.0	$50,000	
	5.0 to 10.0	$150,000	
	10.0 to 20.0	$275,000	
	20.0 to 30.0	$300,000	
	30.0 to 40.0	$325,000	
	40.0 and above	$500,000	

Construction Layout	Project Cost (Mil.)	$	$7,000
	Less than 1.0	$7,000	
	1.0 to 2.0	$20,000	
	2.0 to 5.0	$42,000	
	5.0 to 10.0	$87,000	
	10.0 to 20.0	$160,000	
	20.0 to 30.0	$270,000	
	30.0 to 40.0	$490,000	
	40.0 & above	$890,000	
		PROJECT TOTAL	**$1,449,053.54**

Contingencies & Escalation			
$1,449,053.54	1.03	1	**$1,492,525.15**
	3%	No escalation	**CONSTRUCTION COST FOR CD ESTIMATE**

Project Cost (Mil.)	Contingencies (C) Percent	Average Construction Duration in Years
0-5	3%	1
Over 5	2.50%	2

Project Cost (Mil.)	% of Construction Cost
Less than 1.0	36.50%
1.0 to 5.0	35.10%
5.0 to 10.0	12.20%
10.0 & above	10.50%
CONSTRUCTION ENGINEERING	$544,771.68

Contingencies for Construction Change Order	
Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of 10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change Orders = 0 **$46,790.87**

EARTHWORK (must be calculated)

	Unit	Quantity	X Unit Price	Amount
Roadway Exc. Unclassified	CY	860	$29.42	$25,301.20
			EARTHWORK TOTAL	**$25,301.20**

GENERAL ITEMS

Item	Project Length (mile)	Cost/mile	Amount
Field Office	0.3	$44,264.00	$13,279.20
Materials Field Laboratory	0.3	$28,970.00	$8,691.00
		GENERAL ITEMS TOTAL	**$21,970.20**

DRAINAGE

Item	Unit	Quantity	X Unit Price	Amount
Inlet	U	6	$2,865.00	$17,190.00
Pipe	LF	750	$104.00	$78,000.00
			DRAINAGE TOTAL	**$95,190.00**

PAVEMENT

Type	Cost	Length (ft)	Pavement Width Factors	Amount
B (White Horse Rd.)	$61	1115	2	$136,030.00
G (White Horse Rd.)	$12	1115	5	$66,900.00
H (White Horse Rd.)	$3	1115	5	$16,725.00
B (Burnt Mill Rd.)	$61	260	2	$31,720.00
G (Burnt Mill Rd.)	$12	260	4	$12,480.00
H (Burnt Mill Rd.)	$3	260	4	$3,120.00
			PAVEMENT TOTAL	**$266,975.00**

INCIDENTAL ITEMS

Item	Quantity	Unit Price	Amount
9" X 16" Vertical Curb	2200	$13.75	$30,250.00
Lighting Assembly	5	$9,500.00	$47,500.00
Meter Cabinet	1	$11,000.00	$11,000.00
Complete Traffic Signal Installation at	4	$165,000.00	$660,000.00
		INCIDENTAL ITEMS TOTAL	**$748,750.00**

LANDSCAPE

Pavement Edge Length in Feet	Cost per Pavement for Topsoil & Seeding	Amount
2200	$4.00	$8,800.00
	LANDSCAPE ITEMS TOTAL	**$8,800.00**

Utilities Relocations by Companies/Owners			
$1,492,525.15	X	0.015	**$22,387.88**
CONSTRUCTION COST			**#VALUE!**
			Utility Relocation Cost for CD Estimate

ROW Cost	
If there is no ROW cost on the project Indicate "No ROW" the box	**$130,680**

Summary	
CONSTRUCTION ESTIMATE	$1,492,525.15
DESIGN	$447,757.55
CONSTRUCTION ENGINEERING	$544,771.68
CONTINGENCIES	$46,790.87
UTILITY RELOCATION	$22,387.88
ROW	$130,680.00
TOTAL ESTIMATE	**$2,684,913.12**

Cost Estimate Summary
Classification 6 - Intersection Improvements

Camden County Routes 670 (Burnt Mill Road) & 673 (White Horse Road)
Alternative III - Jug Handles

Work Type	Totals
Earthwork	$85,788.72
Pavement	$160,512.00
Culverts	$20,000.00
Bridges	N/A
Drainage	$ 17,190.00
Incidental Items	$ 709,000.00
Landscape	$ 6,000.00
Noise Abatement	N/A
General Items	$18,308.50
PROJECT SUBTOTAL	$1,016,799.22

Other Items	Proj Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	$30,503.98
Maintenance of Traffic		7% of Proj. Subtotal	$71,175.95
Training		1% of Proj. Subtotal	$10,167.99
Mobilization	Project Cost (Mil.)	% of Proj. Subtotal	$101,679.92
	Less Than 1.0	10% of Proj. Subtotal	
	1.0 to 5.0	11% of Proj. Subtotal	
	5.0 to 10.0	11% of Proj. Subtotal	
	10.0 to 20.0	14% of Proj. Subtotal	
	20.0 to 30.0	15% of Proj. Subtotal	
	30.0 to 40.0	16% of Proj. Subtotal	
	40.0 and above	17% of Proj. Subtotal	
Progress Schedule	Project Cost (Mil.)	$	$5,000.00
	Less Than 1.0	$5,000	
	1.0 to 2.0	$7,000	
	2.0 to 5.0	$15,000	
	5.0 to 10.0	$25,000	
	10.0 to 20.0	$35,000	
	20.0 to 30.0	$60,000	
	30.0 to 40.0	$70,000	
	40.0 and above	$100,000	
Clearing Site	Project Cost (Mil.)	$	$25,000
	Less than 1.0	$25,000	
	1.0 to 5.0	$50,000	
	5.0 to 10.0	$150,000	
	10.0 to 20.0	$275,000	
	20.0 to 30.0	$300,000	
	30.0 to 40.0	$325,000	
	40.0 and above	$500,000	

Construction Layout	Project Cost (Mil.)	$	$7,000
	Less than 1.0	$7,000	
	1.0 to 2.0	$20,000	
	2.0 to 5.0	$42,000	
	5.0 to 10.0	$87,000	
	10.0 to 20.0	$160,000	
	20.0 to 30.0	$270,000	
	30.0 to 40.0	$490,000	
	40.0 & above	$890,000	
		PROJECT TOTAL	**$1,267,327.06**

Contingencies & Escalation			
$1,267,327.06	1.03	1	**$1,305,346.87**

CONSTRUCTION COST FOR CD ESTIMATE

Project Cost (Mil.)	Contingencies (C) Percent	Average Construction Duration in Years
0-5	3%	1
Over 5	2.50%	2

Project Cost (Mil.)	% of Construction Cost
Less than 1.0	36.50%
1.0 to 5.0	35.10%
5.0 to 10.0	12.20%
10.0 & above	10.50%
CONSTRUCTION ENGINEERING	$476,451.61

Contingencies for Construction Change Order	
Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of 10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change Orders = 0 **$44,058.06**

EARTHWORK (must be calculated)

	Unit	Quantity	X Unit Price	Amount
Roadway Exc. Unclassified	CY	2916	$29.42	$85,788.72
			EARTHWORK TOTAL	**$85,788.72**

GENERAL ITEMS

Item	Project Length (mile)	Cost/mile	Amount
Field Office	0.25	$44,264.00	$11,066.00
Materials Field Laboratory	0.25	$28,970.00	$7,242.50
		GENERAL ITEMS TOTAL	**$18,308.50**

DRAINAGE

Item	Unit	Quantity	X Unit Price	Amount
Inlet	U	6	$2,865.00	$17,190.00
			DRAINAGE TOTAL	**$17,190.00**

PAVEMENT

Type	Cost	Length (ft)	Pavement Width Factors	Amount
B	$61	1056	2	$128,832.00
G	$12	1056	2	$25,344.00
H	$3	1056	2	$6,336.00
			PAVEMENT TOTAL	**$160,512.00**

INCIDENTAL ITEMS

Item	Quantity	Unit Price	Amount
9" X 16" Vertical Curb	1500	$13.75	$20,625.00
Lighting Assembly	4	$9,500.00	$38,000.00
Meter Cabinet	1	$11,000.00	$11,000.00
Complete Traffic Signal	4	$165,000.00	$660,000.00
		INCIDENTAL ITEMS TOTAL	**$709,000.00**

LANDSCAPE

Pavement Edge Length in Feet	Cost per Pavement for Topsoil & Seeding	Amount
1500	$4.00	$6,000.00
	LANDSCAPE ITEMS TOTAL	**$6,000.00**

Utilities Relocations by Companies/Owners			
$1,305,346.87	X	0.015	**$39,580.20**
			Utility Relocation Cost for CD Estimate

ROW Cost	
If there is no ROW cost on the project Indicate "No ROW" the box	**$696,960**

Summary	
CONSTRUCTION ESTIMATE	$1,305,346.87
DESIGN	$391,604.06
CONSTRUCTION ENGINEERING	$476,451.61
CONTINGENCIES	$44,058.06
UTILITY RELOCATION	$39,580.20
ROW	$696,960.00
TOTAL ESTIMATE	**$2,954,000.80**

Cost Estimate Summary
Classification 6 - Intersection Improvements

Camden County Routes 670 (Burnt Mill Road) & 673 (White Horse Road)
Alternative IV - Roundabout

Work Type	Totals
Earthwork	$101,499.00
Pavement	$963,072.00
Culverts	$20,000.00
Bridges	N/A
Drainage	$ 138,380.00
Incidental Items	$ 88,212.50
Landscape	$ 9,080.00
Noise Abatement	N/A
General Items	$29,293.60
PROJECT SUBTOTAL	$1,349,537.10

Other Items	Proj Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	$40,486.11
Maintenance of Traffic		7% of Proj. Subtotal	$94,467.60
Training		1% of Proj. Subtotal	$13,495.37
Mobilization	Project Cost (Mil.)	% of Proj. Subtotal	$134,953.71
	Less Than 1.0	10% of Proj. Subtotal	
	1.0 to 5.0	11% of Proj. Subtotal	
	5.0 to 10.0	11% of Proj. Subtotal	
	10.0 to 20.0	14% of Proj. Subtotal	
	20.0 to 30.0	15% of Proj. Subtotal	
	30.0 to 40.0	16% of Proj. Subtotal	
	40.0 and above	17% of Proj. Subtotal	
Progress Schedule	Project Cost (Mil.)	$	$5,000.00
	Less Than 1.0	$5,000	
	1.0 to 2.0	$7,000	
	2.0 to 5.0	$15,000	
	5.0 to 10.0	$25,000	
	10.0 to 20.0	$35,000	
	20.0 to 30.0	$60,000	
	30.0 to 40.0	$70,000	
	40.0 and above	$100,000	
Clearing Site	Project Cost (Mil.)	$	$25,000
	Less than 1.0	$25,000	
	1.0 to 5.0	$50,000	
	5.0 to 10.0	$150,000	
	10.0 to 20.0	$275,000	
	20.0 to 30.0	$300,000	
	30.0 to 40.0	$325,000	
	40.0 and above	$500,000	

Construction Layout	Project Cost (Mil.)	$	$20,000
	Less than 1.0	$7,000	
	1.0 to 2.0	$20,000	
	2.0 to 5.0	$42,000	
	5.0 to 10.0	$87,000	
	10.0 to 20.0	$160,000	
	20.0 to 30.0	$270,000	
	30.0 to 40.0	$490,000	
	40.0 & above	$890,000	
		PROJECT TOTAL	**$1,682,939.89**

Contingencies & Escalation			
$1,682,939.89	1.03	1	**$1,733,428.09**

CONSTRUCTION COST FOR CD ESTIMATE

Project Cost (Mil.)	Contingencies (C) Percent	Average Construction Duration in Years
0-5	3%	1
Over 5	2.50%	2

Project Cost (Mil.)	% of Construction Cost
Less than 1.0	36.50%
1.0 to 5.0	35.10%
5.0 to 10.0	12.20%
10.0 & above	10.50%
CONSTRUCTION ENGINEERING	$632,701.25

Contingencies for Construction Change Order	
Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of 10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change Orders = 0 **$94,337.12**

EARTHWORK (must be calculated)

	Unit	Quantity	X Unit Price	Amount
Roadway Exc. Unclassified	CY	3450	$29.42	$101,499.00
			EARTHWORK TOTAL	**$101,499.00**

GENERAL ITEMS

Item	Project Length (mile)	Cost/mile	Amount
Field Office	0.4	$44,264.00	$17,705.60
Materials Field Laboratory	0.4	$28,970.00	$11,588.00
		GENERAL ITEMS TOTAL	**$29,293.60**

DRAINAGE

Item	Unit	Quantity	X Unit Price	Amount
Inlet	U	12	$2,865.00	$34,380.00
Pipe	LF	1000	$104.00	$104,000.00
			DRAINAGE TOTAL	**$138,380.00**

PAVEMENT

Type	Cost	Length (ft)	Pavement Width Factors	Amount
B	$61	2112	6	$772,992.00
G	$12	2112	6	$152,064.00
H	$3	2112	6	$38,016.00
			PAVEMENT TOTAL	**$963,072.00**

INCIDENTAL ITEMS

Item	Quantity	Unit Price	Amount
9" X 16" Vertical Curb	2270	$13.75	$31,212.50
Lighting Assembly	6	$9,500.00	$57,000.00
		INCIDENTAL ITEMS TOTAL	**$88,212.50**

LANDSCAPE

Pavement Edge Length in Feet	Cost per Pavement for Topsoil & Seeding	Amount
2270	$4.00	$9,080.00
	LANDSCAPE ITEMS TOTAL	**$9,080.00**

Utilities Relocations by Companies/Owners	
Based on estimates provided by utiliy companies	**$46,001.42**
	Utility Relocation Cost for CD Estimate

ROW Cost	
If there is no ROW cost on the project Indicate "No ROW" the box	**$479,160**

Summary	
CONSTRUCTION ESTIMATE	$1,733,428.09
DESIGN	$520,028.43
CONSTRUCTION ENGINEERING	$632,701.25
CONTINGENCIES	$94,337.12
UTILITY RELOCATION	$46,001.42
ROW	$479,160.00
TOTAL ESTIMATE	**$3,505,656.31**

APPENDIX O

Alternatives Matrix

Local Concept Development Study for
Camden County Routes 670 & 673
Burn Mill Road & White Horse Road

Alternatives Matrix

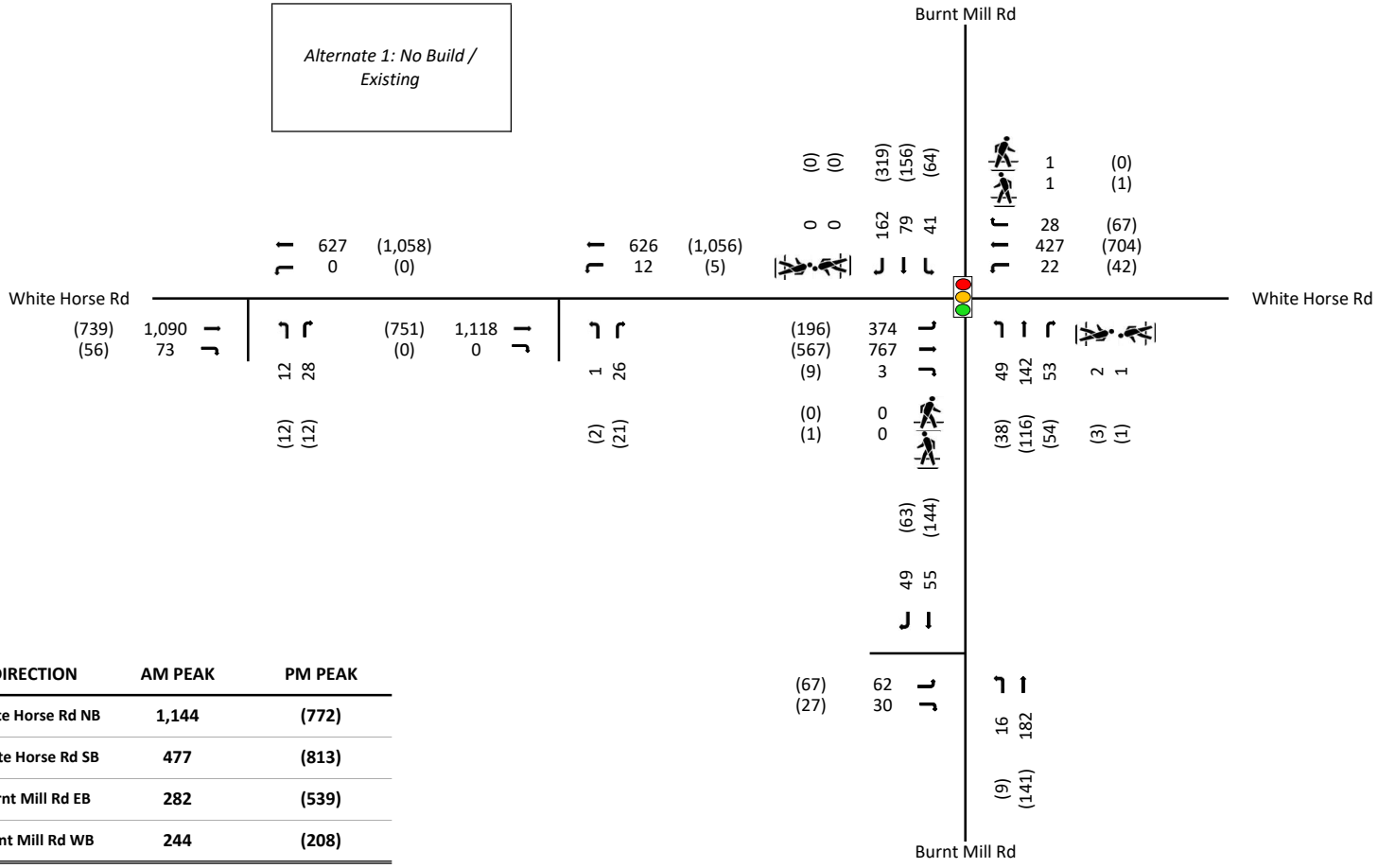
Alternatives			1. No Build	2. Left Turn Lanes (PPA)	3. Left Turn Jug-Handles	4. Roundabout
Overview						
Descriptions	*1*	Description	•No-Build / Existing	•Left turn lanes on both sides of White Horse Road •Raised concrete median west of the intersection to prevent left turn movement exiting WAWA •Travel lanes remain 11' each to maintain existing conditions •Increase turning radius of right turn from Burnt Mill Road SB to White Horse Road WB	•Left turn jug-handles on both directions of White Horse Road •Restrict onto Burnt Mill Road •Travel lanes remain 11' each to maintain existing conditions •Increase turning radius of right turn from Burnt Mill Road SB to White Horse Road WB •The jug handle lane on White Horse Road EB is an exit only lane	•Two-lane roundabout •Lane width varies from 11' to 16' throughout roundabout onto White Horse Road •Only one exit lane to Burnt Mill Road SB & NB •Splitter islands located at all entry points of the roundabout for pedestrian accessibility
Advantages	*2*	Description	•No advantages	•Remove left turn driveways from WAWA onto White Horse SB. (To be revisited in PE) •Reduce queue time for left turn movements •CR 673 Left turns geometry has 0 offset / increased visibilty	•Remove conflict points created by left turn from White Horse Road to Burnt Mill Road	•Improvement of serviceability of the intersection
Disadvantages	*3*	Description	•This altenative does not address the issues of crash rates and crash rates involving injuries •Does not address traffic delay and congestion •CR 673 Left turns geometry has negative offset / limited visibilty	•11 properties are impacted due to ROW and access constraints	•Substandard design •Will not eliminate crash rates due to left turn movements from WAWA onto White Horse Road •Reroute stream and headwall at southeast corner of intersection	•ROW take required •Longer construction time •Higher construction cost •Reroute stream and headwall at southeast corner of intersection •Irregular roundabout geometry - left turn onto Burnt Mill NB would not be serviceable
Purpose & Need						
Meet Purpose & Need	*4*	Y/N	No	Yes	Yes	Yes
Environmental						
Environmental Impact & SWM Compliance	*5*	Description	N/A	•0.17 ac of new impervious area •0.6 ac of total disturbance •Does not trigger major development •Stormwater Management not required •Regulated waste/contaminates site involvement required •Cultural/Historic resource involvementis required •Potential Federal/State T&E Specices Habitat Impacts •Potential Fill in the Floodplain •No anticipated Wetland or Waterway Impacts •No anticipated Riparian Zone Impacts •No potential Regulate Waste/Contaminated Site Improvements anticipated •Minimal Air Quality/Noise Impacts	•0.25 ac of new imprevious area •0.70 ac of total disturbance •Does trigger Major Development •Stormwater Management required •Possible impacts towards SOW and wetland transition areas •Regulated waste/contaminates site involvement not required •Cultural/Historic resource involvementis required •Potential Federal/State T&E Specices Habitat Impacts •Potential Fill in the Floodplain •Approx. 0.002 ac Waterway Impacts and no direct wetlands impacts •Approx. 0.027 ac Riparian Zone Impacts •No potential Regulate Waste/Contaminated Site Improvements anticipated •Minimal Air Quality/Noise Impacts	•0.45 ac of new imprevious area •2.0 ac of total disturbance •Does trigger Major Development •Stormwater Management required •Impact towards SOW •Regulated waste/contaminates site involvement required •Cultural/Historic resource involvement is required •Potential Federal/State T&E Specices Habitat Impacts •Potential Fill in the Floodplain •Approx. 0.039 ac Waterway Impacts and no Wetland impacts •Approx. 0.281 ac Riparian Zone Impacts •No potential Regulate Waste/Contaminated Site Improvements anticipated •Minimal Air Quality/Noise Impacts
Construction & Design						
Access Impacts	*6*	Description	N/A	•Widening of roadway will impact driveways of residential and commercial properties	•Only impact to Atlantic Coin & Jewelry Exchange	•Roundabout will impact access to properties within the project limits
Design Exceptions	*7*	Description	N/A	•No shoulder along White Horse Road •Left turn lanes may not have sufficient length.	•Turn radius less than adequate according to RDM. •No shoulder along White Horse Road	N/A
Constructability	*8*	Description	N/A	•Construction can be done in three stages •Construction requires: milling, full depth pavement, concete construction (sidewalk, island)	•Construction can be done in one stage •Construction requires: milling, full depth pavement, concete construction (sidewalk)	•Will require large scale mobilization and construction •Construction must be done in multiple stages •Construction requires: milling, full depth pavement, concete construction (sidewalk, island)
Operation & Safety						
Operation & Safety Improvements	*9*	Description	•No change to existing safety flaws	•Proposed signaling will allow for safe left turn onto Burnt Mill Road •ADA facilities will be upgraded at all locations •Adequate right turn for heavy vehicles to and from Burnt Mill Road NB	•ADA facilities will be upgraded at all locations	•Difficult turn movements for heavy vehicles onto White Horse Road •Atypical geomtetry due to site constraints •Pedestrian crossing will be allowable at splitter islands
Traffic						
Traffic	*10*	Description	•Intersection LOS B (19.6)/B (18.7) •High CR 673 NB Lefts for AM & PM •NB Left LOS D (39.7)/C (28.4) •Intersection 2042 LOS D (41.4)/C (32.2) •2042 NB Left LOS F (180.0)/E (74.3)	•Intersection LOS B (19.5)/B (19.1) •Large reduction in NB Left delays •NB Left LOS C (30.2)/B (16.7) •Intersection 2042 LOS B (18.0)/B (18.1) •2042 NB Left LOS B (15.0)/B (14.6)	•Intersection LOS C (28.4)/C (20.8) •Intersection 2042 LOS E (61.0)/C (26.5)	•Intersection LOS B (10.0)/A (8.3) •Intersection 2042 LOS C (16.9)/B (11.1)
Costs						
Utility Impacts	*11*	Description	N/A	•Utility pole relocation •Inlet relocation •Fire Hydrant relocation	•Utility pole relocation •Inlet relocation •Underground Stream & Headwall	•Utility pole relocation •Inlet relocation •Underground Stream & Headwall •Fire Hydrant Relocation
ROW Impacts	*12*	Description	N/A	•Approx. ROW take of 0.3 ac required (residential & commercial) •All partial takes •0.12 ac from WAWA	•Approx. ROW take of 1.6 ac required (commercial, 3 full takes)	•Approx. 1.0 ac of ROW required (commercial, 2 full takes)
Estimated Total Project Cost	*13*	$	N/A	• **Preliminary Design** **$179,103** • **Final Design** **$268,655** • **Construction** **$1.493 million**	• **Preliminary Design** **$156,642** • **Final Design** **$234,962** • **Construction** **$1.305 million**	• **Preliminary Design** **$208,011** • **Final Design** **$312,017** • **Construction** **$1.733 million**

APPENDIX P

Traffic Analysis

HOURLY TRAFFIC DATA RECORDED 1/10/2023.

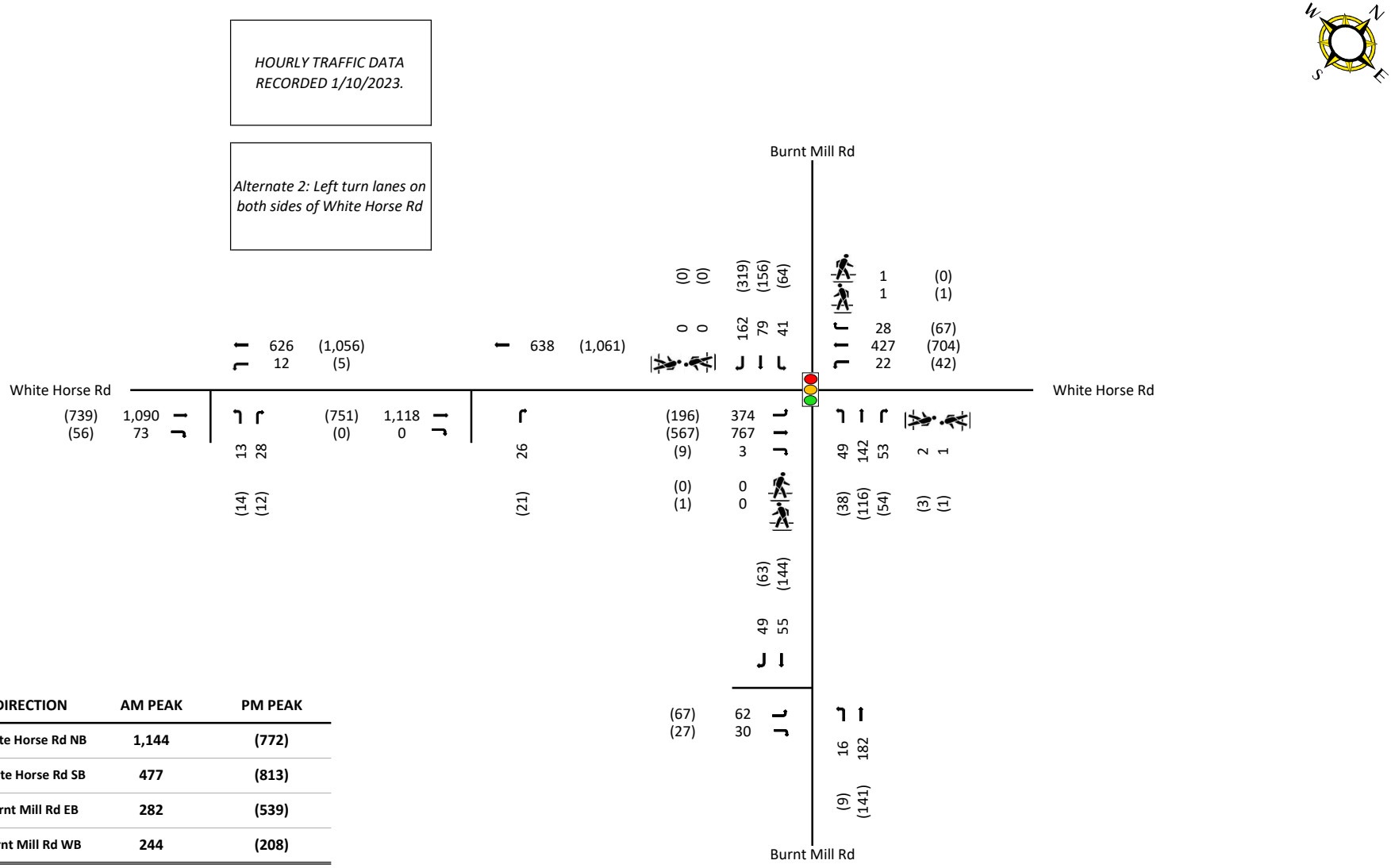
Alternate 1: No Build / Existing



DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,144	(772)
White Horse Rd SB	477	(813)
Burnt Mill Rd EB	282	(539)
Burnt Mill Rd WB	244	(208)
TOTAL	2,147	(2,332)

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend	Figure 1A
JMT Project No. 21-03638 Voorhees Township, Camden County, NJ	AM Peak Hour: XXX PM Peak Hour: (XXX) Signalized Intersection: Thru Movement: Turning Movement:	Alternate 1: No Build Existing Traffic Volumes 2023 AM & PM Peak Hour



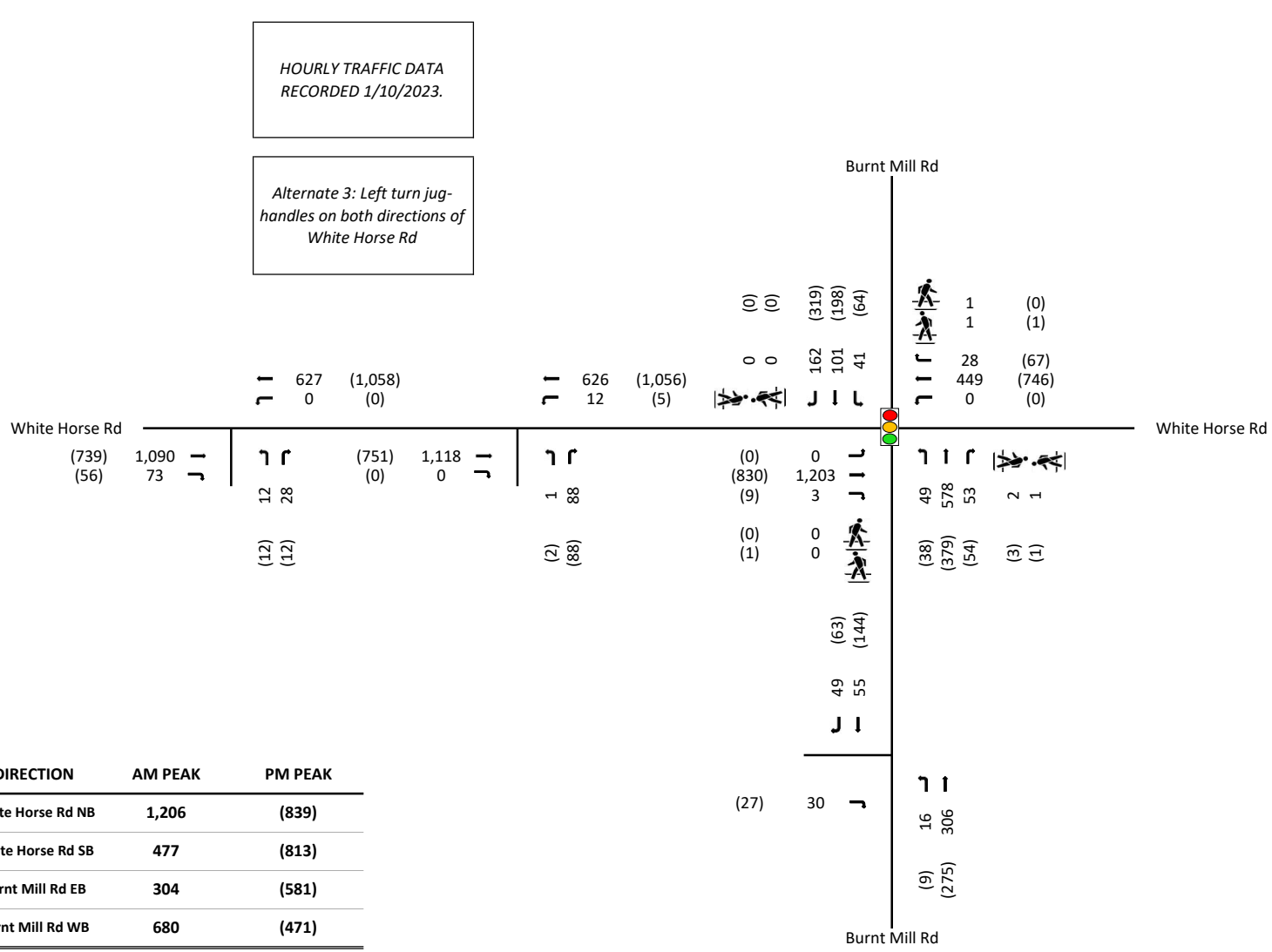
DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,144	(772)
White Horse Rd SB	477	(813)
Burnt Mill Rd EB	282	(539)
Burnt Mill Rd WB	244	(208)
TOTAL	2,147	(2,332)

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend	Figure 1B
JMT Project No. 21-03638	AM Peak Hour: XXX PM Peak Hour: (XXX) Signalized Intersection: Thru Movement: Turning Movement:	Alternate 2: Left Turn Lanes on White Horse Rd
Voorhees Township, Camden County, NJ		2023 AM & PM Peak Hour

HOURLY TRAFFIC DATA RECORDED 1/10/2023.

Alternate 3: Left turn jug-handles on both directions of White Horse Rd

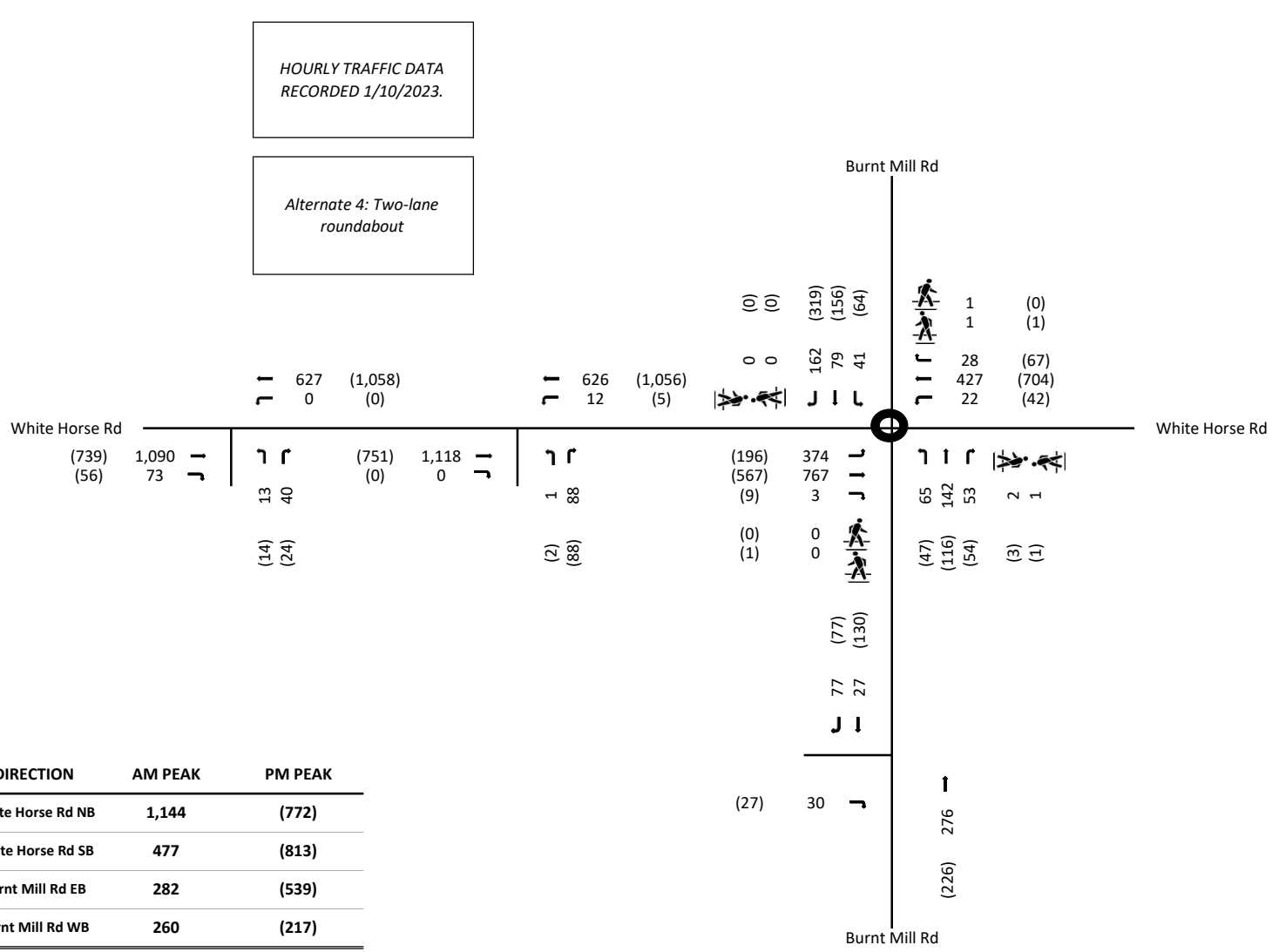


DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,206	(839)
White Horse Rd SB	477	(813)
Burnt Mill Rd EB	304	(581)
Burnt Mill Rd WB	680	(471)
TOTAL	2,667	(2,704)

JOHNSON, MIRMIRAN & THOMPSON	**Concept Development Report** JMT Project No. 21-03638 Voorhees Township, Camden County, NJ	**Volume Flow Diagram Legend** AM Peak Hour: XXX PM Peak Hour: (XXX) Signalized Intersection: Thru Movement: Turning Movement:	**Figure 1C** Alternate 3: Left Turn Jug-handles on White Horse Rd 2023 AM & PM Peak Hour

HOURLY TRAFFIC DATA RECORDED 1/10/2023.

Alternate 4: Two-lane roundabout



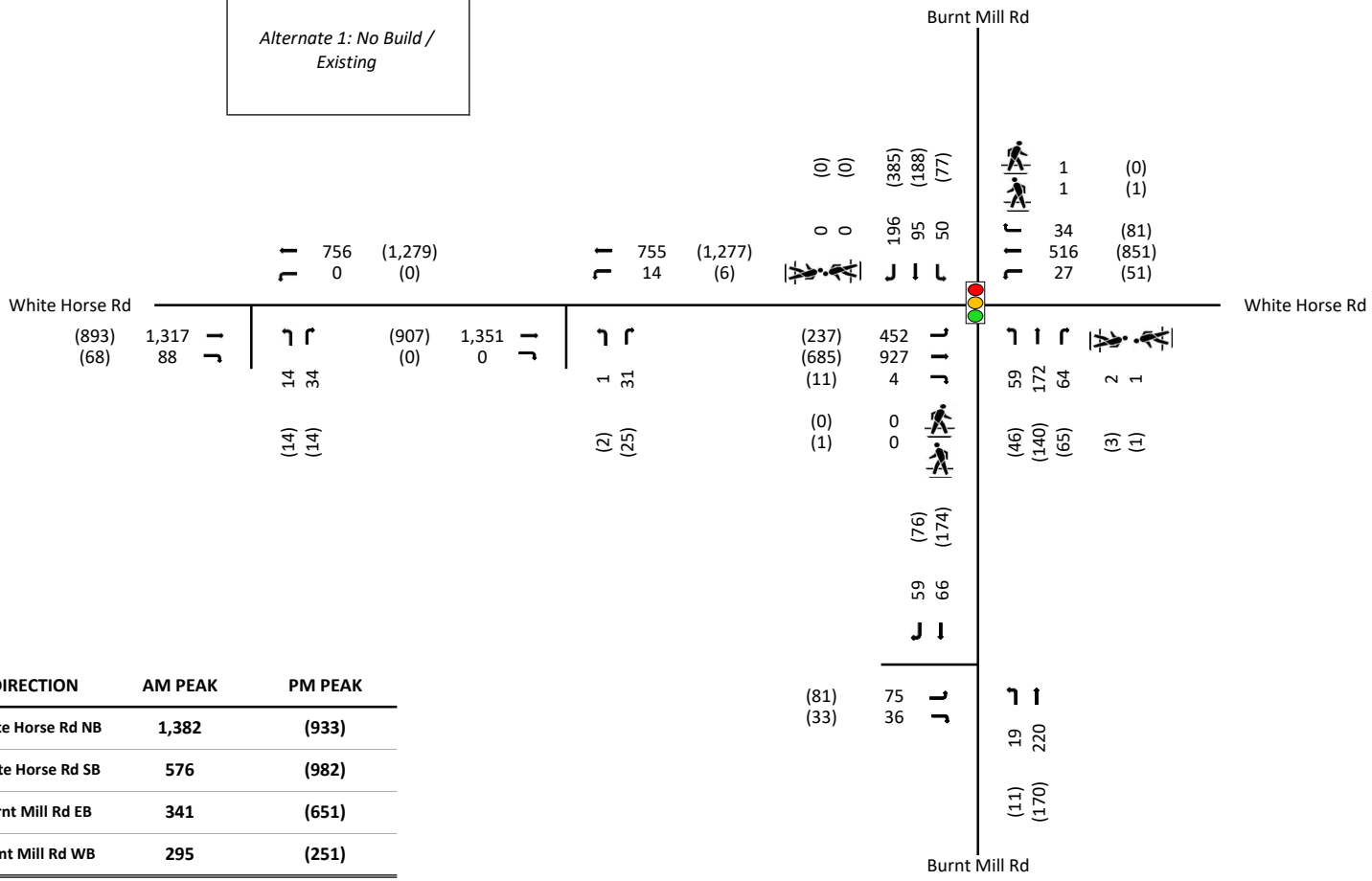
DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,144	(772)
White Horse Rd SB	477	(813)
Burnt Mill Rd EB	282	(539)
Burnt Mill Rd WB	260	(217)
TOTAL	2,163	(2,341)

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend		Figure 1D
JMT Project No. 21-03638	AM Peak Hour: XXX PM Peak Hour: (XXX)	Roundabout Intersection: Thru Movement: Turning Movement:	Alternate 4: Two-lane Roundabout
Voorhees Township, Camden County, NJ			2023 AM & PM Peak Hour

VOLUMES ANNUALY GROWN USING NJDOT GROWTH FACTORS.

Alternate 1: No Build / Existing



DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,382	(933)
White Horse Rd SB	576	(982)
Burnt Mill Rd EB	341	(651)
Burnt Mill Rd WB	295	(251)
TOTAL	2,594	(2,817)

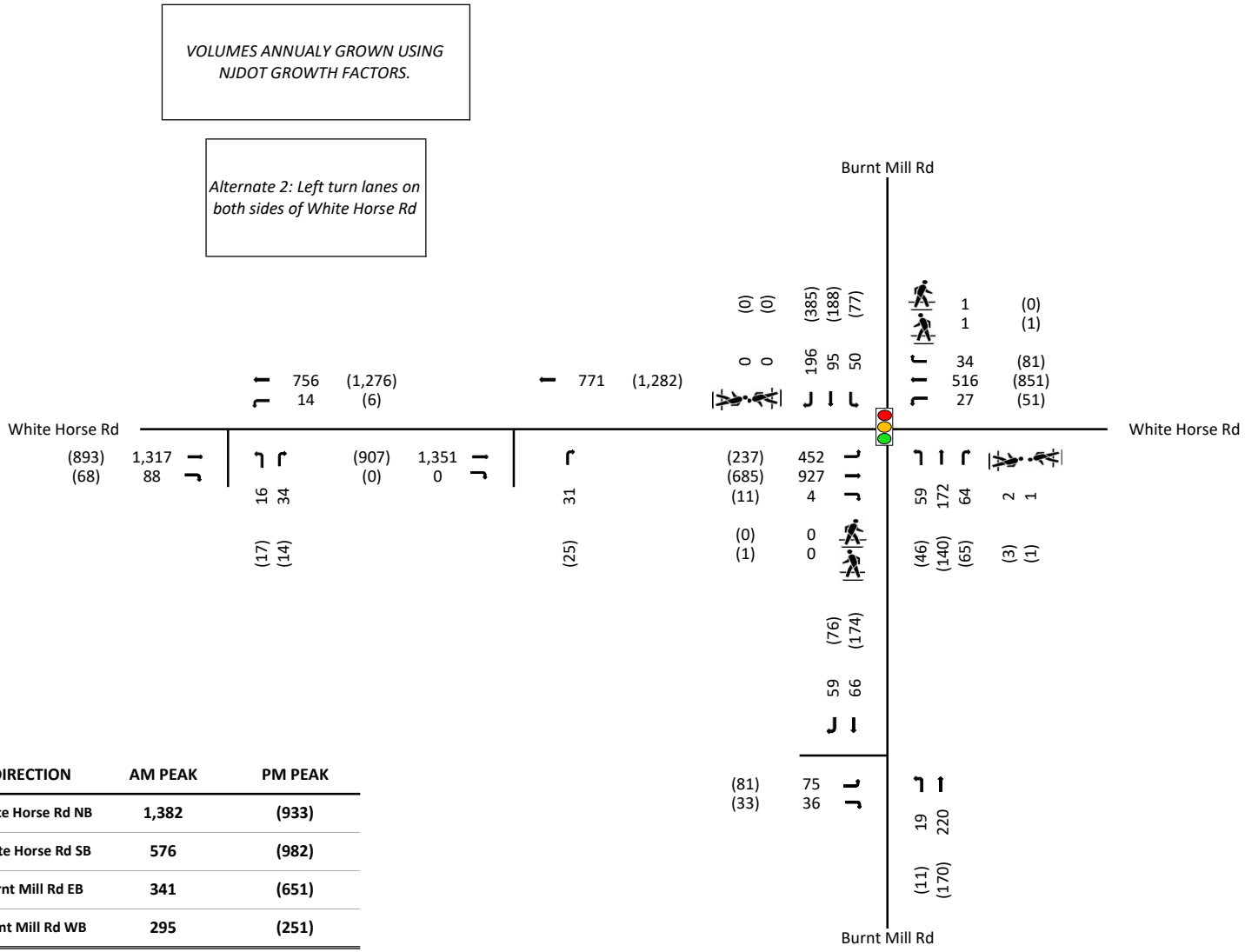
BUILD-YEAR GROWTH RATE	
GROWTH RATE:	1.00%
YEARS:	19
GROWTH FACTOR:	1.208

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend	Figure 2A
JMT Project No. 21-03638	AM Peak Hour: XXX PM Peak Hour: (XXX) Signalized Intersection: Traffic Volumes:	Alternate 1: No Build Projected Traffic Volumes
Voorhees Township, Camden County, NJ		2042 AM & PM Peak Hour

VOLUMES ANNUALY GROWN USING NJDOT GROWTH FACTORS.

Alternate 2: Left turn lanes on both sides of White Horse Rd



DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,382	(933)
White Horse Rd SB	576	(982)
Burnt Mill Rd EB	341	(651)
Burnt Mill Rd WB	295	(251)
TOTAL	2,594	(2,817)

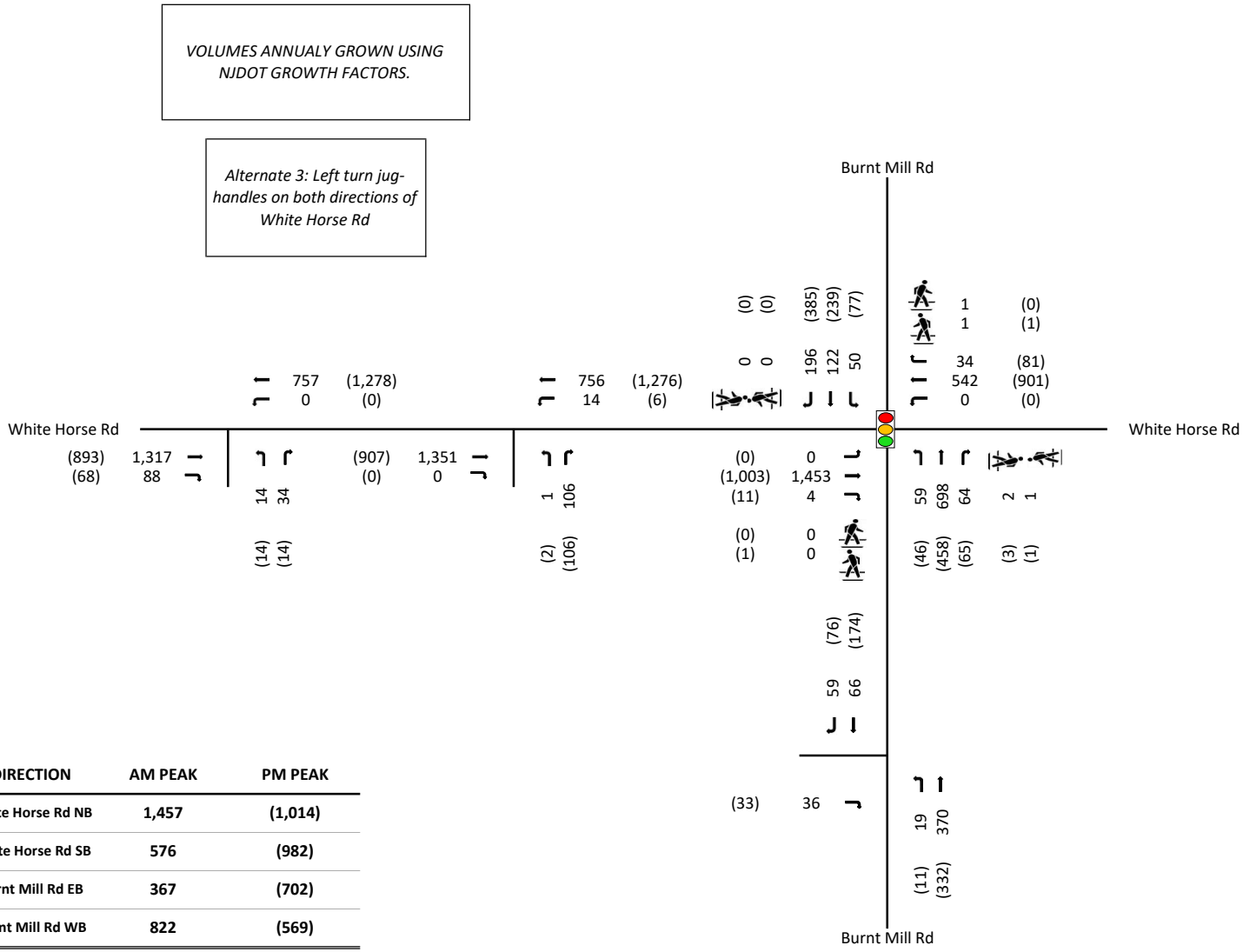
BUILD-YEAR GROWTH RATE	
GROWTH RATE:	1.00%
YEARS:	19
GROWTH FACTOR:	1.208

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend	Figure 2B
JMT Project No. 21-03638	AM Peak Hour: XXX PM Peak Hour: (XXX) Signalized Intersection: Traffic Volumes:	Alternate 2: Left Turn Lanes on White Horse Rd
Voorhees Township, Camden County, NJ		2042 AM & PM Peak Hour

VOLUMES ANNUALY GROWN USING NJDOT GROWTH FACTORS.

Alternate 3: Left turn jug-handles on both directions of White Horse Rd



DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,457	(1,014)
White Horse Rd SB	576	(982)
Burnt Mill Rd EB	367	(702)
Burnt Mill Rd WB	822	(569)
TOTAL	3,222	(3,267)

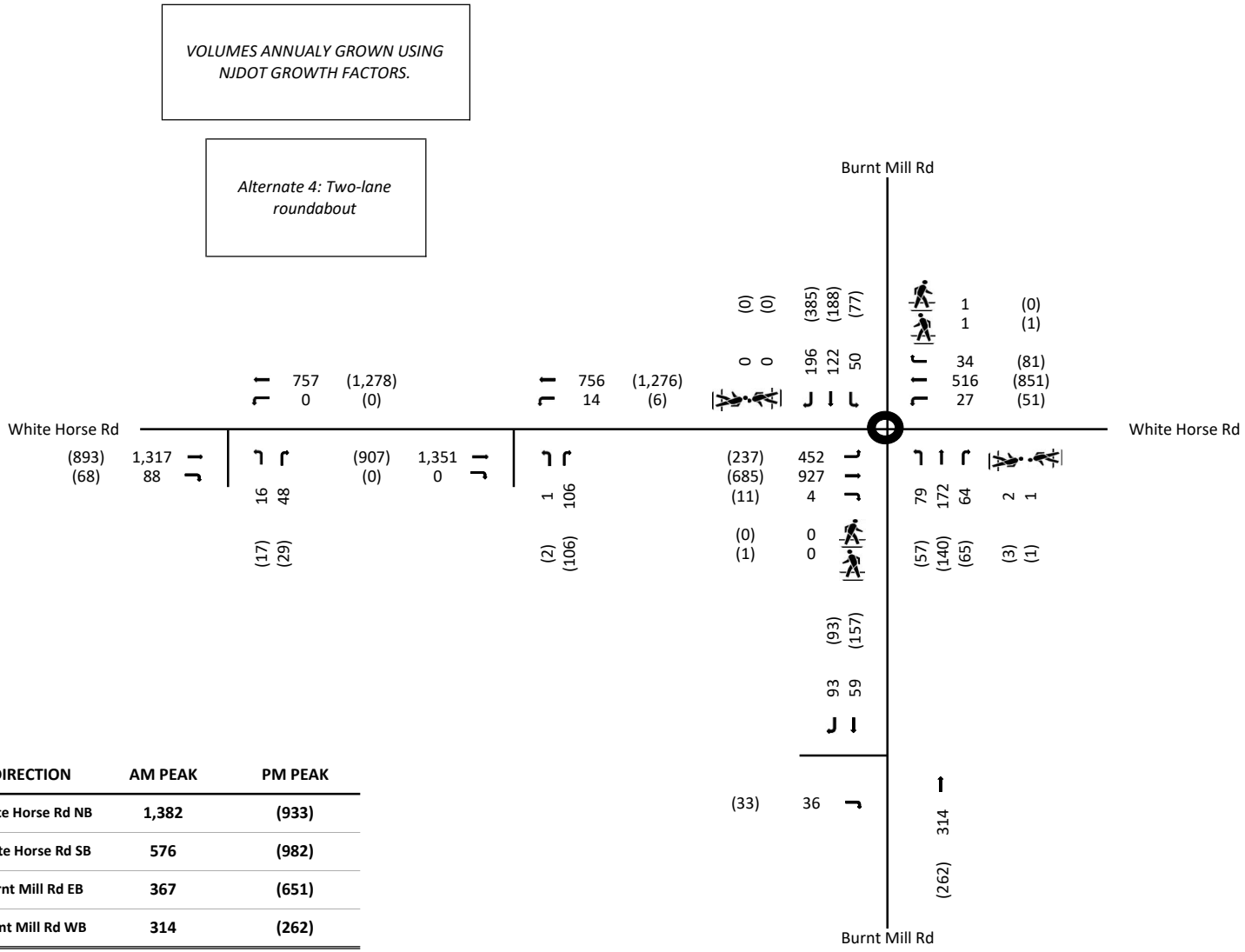
BUILD-YEAR GROWTH RATE	
GROWTH RATE:	1.00%
YEARS:	19
GROWTH FACTOR:	1.208

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend	Figure 2C
JMT Project No. 21-03638	AM Peak Hour: XXX PM Peak Hour: (XXX) Signalized Intersection: Traffic Volumes:	Alternate 3: Left Turn Jug-handles on White Horse Rd
Voorhees Township, Camden County, NJ		2042 AM & PM Peak Hour

VOLUMES ANNUALY GROWN USING NJDOT GROWTH FACTORS.

Alternate 4: Two-lane roundabout



DIRECTION	AM PEAK	PM PEAK
White Horse Rd NB	1,382	(933)
White Horse Rd SB	576	(982)
Burnt Mill Rd EB	367	(651)
Burnt Mill Rd WB	314	(262)
TOTAL	2,640	(2,828)

BUILD-YEAR GROWTH RATE	
GROWTH RATE:	1.00%
YEARS:	19
GROWTH FACTOR:	1.208

JOHNSON, MIRMIRAN & THOMPSON

Concept Development Report	Volume Flow Diagram Legend	Figure 2D
JMT Project No. 21-03638	AM Peak Hour: XXX PM Peak Hour: (XXX)	Roundabout Intersection: O Traffic Volumes: ⌐ ⊢ ⌙
Voorhees Township, Camden County, NJ		Alternate 4: Two-lane Roundabout 2042 AM & PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	79	162	49	142	53	374	767	3	22	427	28
Future Volume (vph)	41	79	162	49	142	53	374	767	3	22	427	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	0		0	0		150
Storage Lanes	0		1	1		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt			0.850		0.960							0.850
Flt Protected		0.984		0.950				0.984			0.997	
Satd. Flow (prot)	0	1638	1406	1678	1677	0	0	3352	0	0	3345	1487
Flt Permitted		0.783		0.673				0.663			0.843	
Satd. Flow (perm)	0	1303	1406	1189	1677	0	0	2259	0	0	2828	1487
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208		19			1				73
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		937			201			231			982	
Travel Time (s)		25.6			5.5			5.3			22.3	
Confl. Peds. (#/hr)	2					2			3	3		
Peak Hour Factor	0.93	0.90	0.78	0.68	0.89	0.90	0.90	0.92	0.75	0.79	0.88	0.56
Heavy Vehicles (%)	5%	13%	11%	4%	2%	12%	3%	2%	33%	4%	4%	5%
Adj. Flow (vph)	44	88	208	72	160	59	416	834	4	28	485	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	208	72	219	0	0	1254	0	0	513	50
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	19.0		19.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	25.0		25.0	25.0	25.0
Total Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	63.0		52.0	52.0	52.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		12.2%	70.0%		57.8%	57.8%	57.8%
Maximum Green (s)	21.0	21.0	21.0	21.0	21.0		8.0	57.0		46.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	0
Act Effct Green (s)		21.0	21.0	21.0	21.0			57.0			57.0	57.0
Actuated g/C Ratio		0.23	0.23	0.23	0.23			0.63			0.63	0.63
v/c Ratio		0.43	0.43	0.26	0.54			0.88			0.29	0.05
Control Delay		34.7	7.3	31.2	33.3			22.5			7.9	0.9
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		34.7	7.3	31.2	33.3			22.5			7.9	0.9
LOS		C	A	C	C			C			A	A
Approach Delay		17.9			32.8			22.5			7.3	
Approach LOS		B			C			C			A	
Queue Length 50th (ft)		64	0	34	100			278			62	0
Queue Length 95th (ft)		120	33	53	170			#434			84	0
Internal Link Dist (ft)		857			121			151			902	
Turn Bay Length (ft)			225									150
Base Capacity (vph)		304	487	277	405			1431			1791	968
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.43	0.43	0.26	0.54			0.88			0.29	0.05

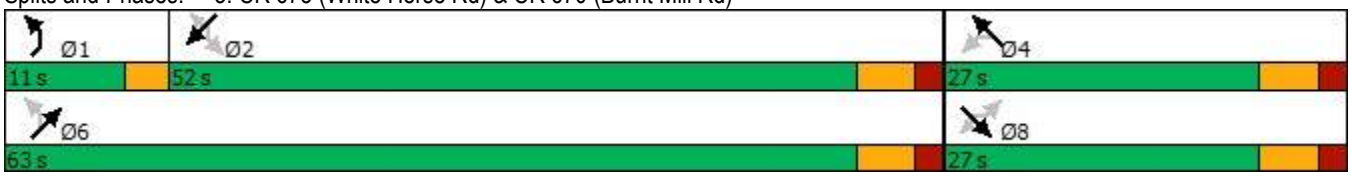
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 19.6		Intersection LOS: B	

Intersection Capacity Utilization 89.4% ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



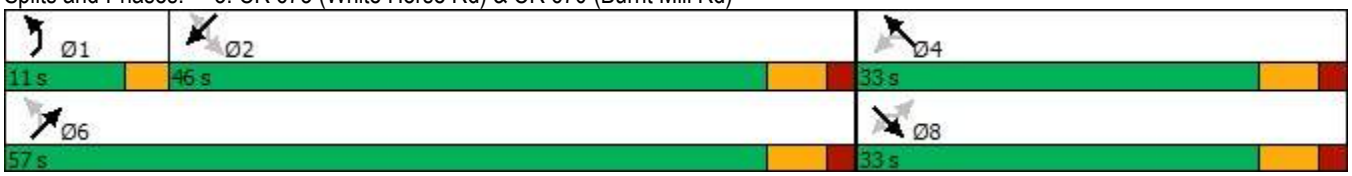
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	64	156	319	38	116	54	196	567	9	42	704	67
Future Volume (vph)	64	156	319	38	116	54	196	567	9	42	704	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	0		0	0		150
Storage Lanes	0		1	1		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00	0.99	1.00	1.00			1.00			1.00	
Frt			0.850		0.953			0.997				0.850
Flt Protected		0.986		0.950				0.988			0.996	
Satd. Flow (prot)	0	1798	1531	1711	1743	0	0	3386	0	0	3444	1531
Flt Permitted		0.818		0.479				0.596			0.797	
Satd. Flow (perm)	0	1491	1510	862	1743	0	0	2042	0	0	2755	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			280		26			3				77
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		937			201			231			982	
Travel Time (s)		21.3			4.6			6.3			26.8	
Confl. Peds. (#/hr)	1		1	1		1			3	3		
Peak Hour Factor	0.84	0.80	0.80	0.73	0.81	0.83	0.88	0.85	0.58	0.66	0.94	0.87
Heavy Vehicles (%)	0%	1%	2%	2%	0%	0%	3%	1%	0%	0%	1%	2%
Adj. Flow (vph)	76	195	399	52	143	65	223	667	16	64	749	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	271	399	52	208	0	0	906	0	0	813	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	19.0		19.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	25.0		25.0	25.0	25.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0		11.0	57.0		46.0	46.0	46.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%		12.2%	63.3%		51.1%	51.1%	51.1%
Maximum Green (s)	27.0	27.0	27.0	27.0	27.0		8.0	51.0		40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	0
Act Effct Green (s)		27.0	27.0	27.0	27.0			51.0			51.0	51.0
Actuated g/C Ratio		0.30	0.30	0.30	0.30			0.57			0.57	0.57
v/c Ratio		0.61	0.61	0.20	0.38			0.78			0.52	0.09
Control Delay		33.8	12.8	26.1	24.2			21.2			13.5	2.5
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		33.8	12.8	26.1	24.2			21.2			13.5	2.5
LOS		C	B	C	C			C			B	A
Approach Delay		21.3			24.6			21.2			12.5	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		131	51	22	81			196			139	0
Queue Length 95th (ft)		184	103	41	124			253			189	17
Internal Link Dist (ft)		857			121			151			902	
Turn Bay Length (ft)			225									150
Base Capacity (vph)		447	649	258	541			1158			1561	900
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.61	0.61	0.20	0.38			0.78			0.52	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 18.7		Intersection LOS: B	

Intersection Capacity Utilization 92.3% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	50	95	196	59	172	64	452	927	4	27	516	34
Future Volume (vph)	50	95	196	59	172	64	452	927	4	27	516	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	0		0	0		150
Storage Lanes	0		1	1		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt			0.850		0.960							0.850
Flt Protected		0.983		0.950				0.984			0.997	
Satd. Flow (prot)	0	1637	1406	1678	1677	0	0	3352	0	0	3345	1487
Flt Permitted		0.517		0.615				0.631			0.803	
Satd. Flow (perm)	0	860	1406	1086	1677	0	0	2149	0	0	2694	1487
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			251		18			1				73
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		937			201			231			982	
Travel Time (s)		25.6			5.5			5.3			22.3	
Confl. Peds. (#/hr)	2					2			3	3		
Peak Hour Factor	0.93	0.90	0.78	0.68	0.89	0.90	0.90	0.92	0.75	0.79	0.88	0.56
Heavy Vehicles (%)	5%	13%	11%	4%	2%	12%	3%	2%	33%	4%	4%	5%
Adj. Flow (vph)	54	106	251	87	193	71	502	1008	5	34	586	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	251	87	264	0	0	1515	0	0	620	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	19.0		19.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	25.0		25.0	25.0	25.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	67.0		56.0	56.0	56.0
Total Split (%)	25.6%	25.6%	25.6%	25.6%	25.6%		12.2%	74.4%		62.2%	62.2%	62.2%
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		8.0	61.0		50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	0
Act Effct Green (s)		18.0	18.0	18.0	18.0			61.0			61.0	61.0
Actuated g/C Ratio		0.20	0.20	0.20	0.20			0.67			0.67	0.67
v/c Ratio		0.94	0.52	0.41	0.76			1.05			0.34	0.06
Control Delay		94.3	8.7	38.5	48.1			56.0			7.1	1.2
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		94.3	8.7	38.5	48.1			56.0			7.1	1.2
LOS		F	A	D	D			E			A	A
Approach Delay		42.0			45.7			56.0			6.5	
Approach LOS		D			D			E			A	
Queue Length 50th (ft)		91	0	44	135			~506			70	0
Queue Length 95th (ft)		#214	36	66	#247			#643			95	1
Internal Link Dist (ft)		857			121			151			902	
Turn Bay Length (ft)			225									150
Base Capacity (vph)		170	479	214	346			1440			1805	1020
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.94	0.52	0.41	0.76			1.05			0.34	0.06

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 91	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 41.4	Intersection LOS: D

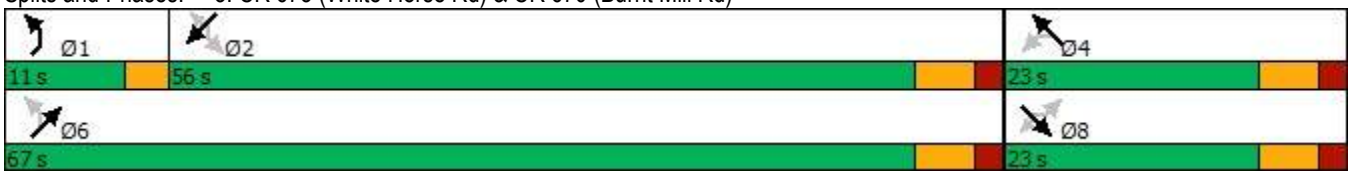
Intersection Capacity Utilization 97.5% ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	77	188	385	46	140	65	237	685	11	51	851	81
Future Volume (vph)	77	188	385	46	140	65	237	685	11	51	851	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	0		0	0		150
Storage Lanes	0		1	1		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00	0.99	1.00	1.00			1.00			1.00	
Frt			0.850		0.953			0.997				0.850
Flt Protected		0.986		0.950				0.988			0.996	
Satd. Flow (prot)	0	1798	1531	1711	1743	0	0	3386	0	0	3444	1531
Flt Permitted		0.670		0.373				0.557			0.725	
Satd. Flow (perm)	0	1221	1510	671	1743	0	0	1909	0	0	2507	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244		25			3				93
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		937			201			231			982	
Travel Time (s)		21.3			4.6			6.3			26.8	
Confl. Peds. (#/hr)	1		1	1		1			3	3		
Peak Hour Factor	0.84	0.80	0.80	0.73	0.81	0.83	0.88	0.85	0.58	0.66	0.94	0.87
Heavy Vehicles (%)	0%	1%	2%	2%	0%	0%	3%	1%	0%	0%	1%	2%
Adj. Flow (vph)	92	235	481	63	173	78	269	806	19	77	905	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	327	481	63	251	0	0	1094	0	0	982	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	19.0		19.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	25.0		25.0	25.0	25.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0		11.0	59.0		48.0	48.0	48.0
Total Split (%)	34.4%	34.4%	34.4%	34.4%	34.4%		12.2%	65.6%		53.3%	53.3%	53.3%
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		8.0	53.0		42.0	42.0	42.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	0
Act Effct Green (s)		25.0	25.0	25.0	25.0			53.0			53.0	53.0
Actuated g/C Ratio		0.28	0.28	0.28	0.28			0.59			0.59	0.59
v/c Ratio		0.96	0.81	0.34	0.50			1.05dl			0.67	0.10
Control Delay		75.2	26.9	32.2	28.5			40.4			15.3	2.1
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		75.2	26.9	32.2	28.5			40.4			15.3	2.1
LOS		E	C	C	C			D			B	A
Approach Delay		46.5			29.2			40.4			14.2	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)		183	128	29	107			289			183	0
Queue Length 95th (ft)		#290	196	52	157			#415			251	17
Internal Link Dist (ft)		857			121			151			902	
Turn Bay Length (ft)			225									150
Base Capacity (vph)		339	595	186	502			1125			1476	939
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.96	0.81	0.34	0.50			0.97			0.67	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 32.2		Intersection LOS: C	

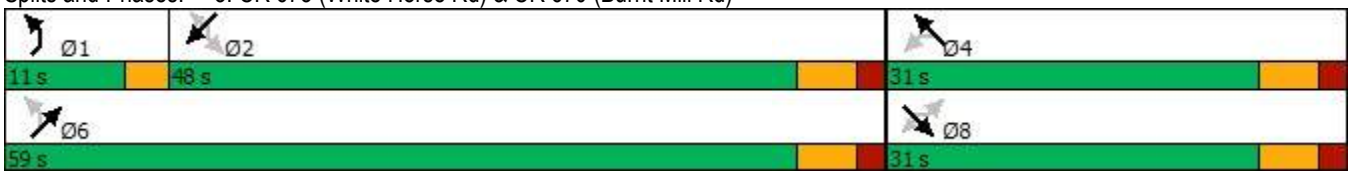
Intersection Capacity Utilization 101.2% ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	79	162	49	142	53	374	767	3	22	427	28
Future Volume (vph)	41	79	162	49	142	53	374	767	3	22	427	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	130		0	85		150
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00			1.00			1.00		1.00		
Frt			0.850		0.960			0.999				0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1638	1406	1678	1677	0	1694	3412	0	1678	3355	1487
Flt Permitted		0.841		0.673			0.413			0.298		
Satd. Flow (perm)	0	1399	1406	1189	1677	0	736	3412	0	525	3355	1487
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208		22			1				73
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		937			218			251			982	
Travel Time (s)		21.3			5.0			6.8			26.8	
Confl. Peds. (#/hr)	2					2			3	3		
Peak Hour Factor	0.93	0.90	0.78	0.68	0.89	0.90	0.90	0.92	0.75	0.79	0.88	0.56
Heavy Vehicles (%)	5%	13%	11%	4%	2%	12%	3%	2%	33%	4%	4%	5%
Adj. Flow (vph)	44	88	208	72	160	59	416	834	4	28	485	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	208	72	219	0	416	838	0	28	485	50
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	7.0		8.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	24.0		11.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0		11.0	44.0		11.0	44.0	44.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	38.9%		12.2%	48.9%		12.2%	48.9%	48.9%
Maximum Green (s)	29.0	29.0	29.0	29.0	29.0		8.0	38.0		8.0	38.0	38.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		29.0	29.0	29.0	29.0		50.8	44.6		49.0	38.0	38.0
Actuated g/C Ratio		0.32	0.32	0.32	0.32		0.56	0.50		0.54	0.42	0.42
v/c Ratio		0.29	0.35	0.19	0.39		0.83	0.50		0.07	0.34	0.07
Control Delay		25.1	5.2	23.7	23.8		30.2	17.4		8.7	18.4	2.2
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		25.1	5.2	23.7	23.8		30.2	17.4		8.7	18.4	2.2
LOS		C	A	C	C		C	B		A	B	A
Approach Delay		12.9			23.7			21.7			16.5	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		56	0	29	86		123	142		6	95	0
Queue Length 95th (ft)		104	29	46	146		#251	246		15	130	0
Internal Link Dist (ft)		857			138			171			902	
Turn Bay Length (ft)			225				130			85		150
Base Capacity (vph)		450	594	383	555		500	1691		388	1416	670
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.29	0.35	0.19	0.39		0.83	0.50		0.07	0.34	0.07

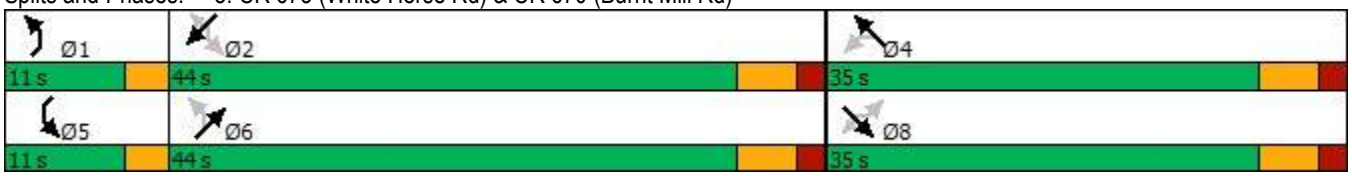
Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 19.5	Intersection LOS: B

Intersection Capacity Utilization 76.3% ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



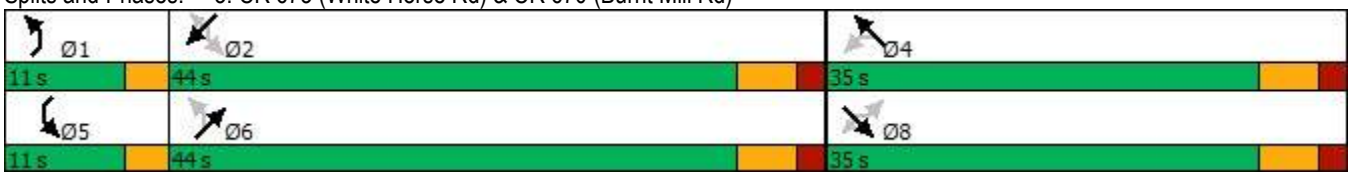
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	64	156	319	38	116	54	196	567	9	42	704	67
Future Volume (vph)	64	156	319	38	116	54	196	567	9	42	704	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	130		0	85		150
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00	0.99	1.00	1.00			1.00		1.00		
Frt			0.850		0.953			0.996				0.850
Flt Protected		0.986		0.950			0.950			0.950		
Satd. Flow (prot)	0	1798	1531	1711	1743	0	1694	3440	0	1745	3455	1531
Flt Permitted		0.842		0.492			0.274			0.341		
Satd. Flow (perm)	0	1535	1510	885	1743	0	489	3440	0	625	3455	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			276		27			3				77
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		937			218			251			982	
Travel Time (s)		21.3			5.0			6.8			26.8	
Confl. Peds. (#/hr)	1		1	1		1			3	3		
Peak Hour Factor	0.84	0.80	0.80	0.73	0.81	0.83	0.88	0.85	0.58	0.66	0.94	0.87
Heavy Vehicles (%)	0%	1%	2%	2%	0%	0%	3%	1%	0%	0%	1%	2%
Adj. Flow (vph)	76	195	399	52	143	65	223	667	16	64	749	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	271	399	52	208	0	223	683	0	64	749	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	19.0		8.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	25.0		11.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0		11.0	44.0		11.0	44.0	44.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	38.9%		12.2%	48.9%		12.2%	48.9%	48.9%
Maximum Green (s)	29.0	29.0	29.0	29.0	29.0		8.0	38.0		8.0	38.0	38.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		29.0	29.0	29.0	29.0		49.6	40.2		49.0	38.0	38.0
Actuated g/C Ratio		0.32	0.32	0.32	0.32		0.55	0.45		0.54	0.42	0.42
v/c Ratio		0.55	0.59	0.18	0.36		0.59	0.44		0.15	0.51	0.11
Control Delay		30.2	12.0	24.2	22.3		16.7	18.9		9.2	20.7	4.4
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		30.2	12.0	24.2	22.3		16.7	18.9		9.2	20.7	4.4
LOS		C	B	C	C		B	B		A	C	A
Approach Delay		19.3			22.7			18.4			18.5	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		126	51	21	77		57	142		15	161	0
Queue Length 95th (ft)		176	102	40	119		92	178		23	214	23
Internal Link Dist (ft)		857			138			171			902	
Turn Bay Length (ft)			225				130			85		150
Base Capacity (vph)		494	673	285	579		376	1538		439	1458	690
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.55	0.59	0.18	0.36		0.59	0.44		0.15	0.51	0.11

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 19.1	Intersection LOS: B

Intersection Capacity Utilization 78.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



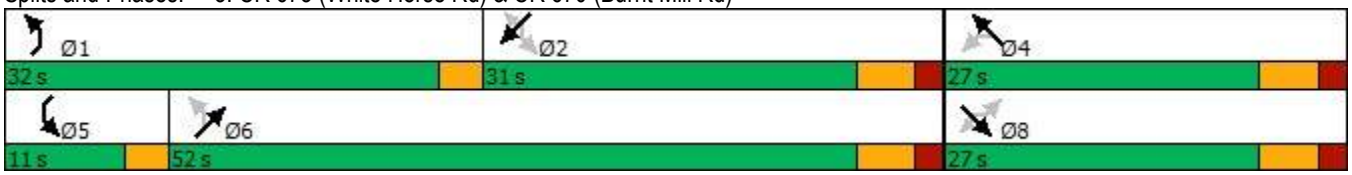
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	50	95	196	59	172	64	452	927	4	27	516	34
Future Volume (vph)	50	95	196	59	172	64	452	927	4	27	516	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	130		0	85		150
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00			1.00			1.00		1.00		
Frt			0.850		0.959			0.999				0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1770	1531	1711	1720	0	1711	3417	0	1711	3421	1531
Flt Permitted		0.723		0.661			0.359			0.295		
Satd. Flow (perm)	0	1301	1531	1190	1720	0	646	3417	0	530	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		20			1				109
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		937			218			251			982	
Travel Time (s)		21.3			5.0			6.8			26.8	
Confl. Peds. (#/hr)	2					2			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	99	204	61	179	67	471	966	4	28	538	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	151	204	61	246	0	471	970	0	28	538	35
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	7.0		8.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	24.0		11.0	25.0	25.0
Total Split (s)	27.0	27.0	27.0	27.0	27.0		32.0	52.0		11.0	31.0	31.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		35.6%	57.8%		12.2%	34.4%	34.4%
Maximum Green (s)	21.0	21.0	21.0	21.0	21.0		29.0	46.0		8.0	25.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		21.1	21.1	21.1	21.1		53.3	46.2		40.6	29.6	29.6
Actuated g/C Ratio		0.25	0.25	0.25	0.25		0.64	0.55		0.49	0.35	0.35
v/c Ratio		0.46	0.38	0.20	0.55		0.74	0.51		0.08	0.44	0.06
Control Delay		33.1	6.6	28.5	31.2		15.0	13.5		7.7	23.0	0.2
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		33.1	6.6	28.5	31.2		15.0	13.5		7.7	23.0	0.2
LOS		C	A	C	C		B	B		A	C	A
Approach Delay		17.9			30.6			14.0			20.9	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)		62	0	23	94		108	133		5	109	0
Queue Length 95th (ft)		136	54	63	193		165	245		13	183	0
Internal Link Dist (ft)		857			138			171			902	
Turn Bay Length (ft)			225				130			85		150
Base Capacity (vph)		328	539	300	449		784	1892		371	1212	612
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.46	0.38	0.20	0.55		0.60	0.51		0.08	0.44	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 82.0%		ICU Level of Service D	

Analysis Period (min) 15

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



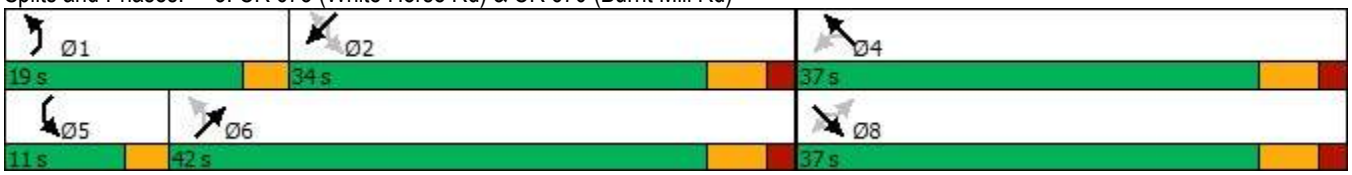
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	77	188	385	46	140	65	237	685	11	27	516	34
Future Volume (vph)	77	188	385	46	140	65	237	685	11	27	516	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		225	0		100	130		0	85		150
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00	0.99	1.00	1.00			1.00		1.00		
Frt			0.850		0.952			0.998				0.850
Flt Protected		0.986		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	1531	1711	1707	0	1711	3413	0	1711	3421	1531
Flt Permitted		0.840		0.506			0.345			0.376		
Satd. Flow (perm)	0	1512	1510	910	1707	0	621	3413	0	675	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			401		28			2				109
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		937			218			251			982	
Travel Time (s)		21.3			5.0			6.8			26.8	
Confl. Peds. (#/hr)	1		1	1		1			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	196	401	48	146	68	247	714	11	28	538	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	276	401	48	214	0	247	725	0	28	538	35
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	2	1		1	2		1	2	0
Detector Template	Left						Left			Left		
Leading Detector (ft)	20	156	156	156	6		20	106		20	156	0
Trailing Detector (ft)	0	2	2	2	2		0	2		0	2	0
Detector 1 Position(ft)	0	2	2	2	2		0	2		0	2	2
Detector 1 Size(ft)	20	4	4	4	4		20	6		20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		152	152	152				100			150	
Detector 2 Size(ft)		4	4	4				6			6	
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0	0.0				0.0			0.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Detector Phase	8	8	8	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		8.0	19.0		8.0	19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		11.0	25.0		11.0	25.0	25.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0		19.0	42.0		11.0	34.0	34.0
Total Split (%)	41.1%	41.1%	41.1%	41.1%	41.1%		21.1%	46.7%		12.2%	37.8%	37.8%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		16.0	36.0		8.0	28.0	28.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		31.1	31.1	31.1	31.1		46.6	39.4		39.5	28.5	28.5
Actuated g/C Ratio		0.36	0.36	0.36	0.36		0.54	0.45		0.46	0.33	0.33
v/c Ratio		0.51	0.50	0.15	0.34		0.51	0.47		0.07	0.48	0.06
Control Delay		26.6	4.8	21.5	20.0		14.6	18.5		10.1	25.4	0.2
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		26.6	4.8	21.5	20.0		14.6	18.5		10.1	25.4	0.2
LOS		C	A	C	C		B	B		B	C	A
Approach Delay		13.7			20.3			17.5			23.2	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)		115	0	17	71		68	124		7	121	0
Queue Length 95th (ft)		203	60	45	136		112	215		19	180	0
Internal Link Dist (ft)		857			138			171			902	
Turn Bay Length (ft)			225				130			85		150
Base Capacity (vph)		541	797	325	629		535	1551		403	1122	575
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.51	0.50	0.15	0.34		0.46	0.47		0.07	0.48	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 86.7			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	

Analysis Period (min) 15

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



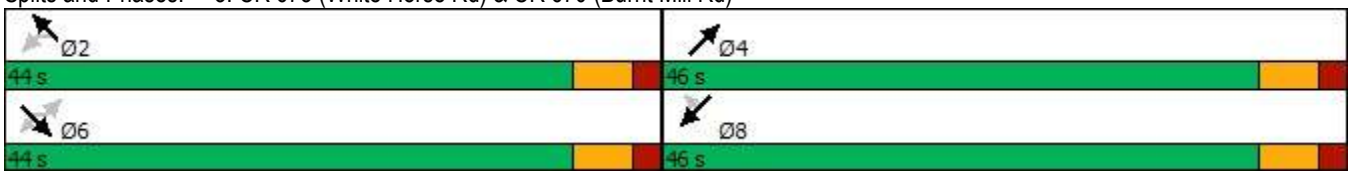
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	101	162	49	578	53	0	1203	3	0	449	28
Future Volume (vph)	41	101	162	49	578	53	0	1203	3	0	449	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					1.00			1.00				
Frt			0.850		0.987							0.850
Flt Protected		0.986		0.950								
Satd. Flow (prot)	0	1775	1531	1711	1775	0	0	3421	0	0	3421	1531
Flt Permitted		0.461		0.659								
Satd. Flow (perm)	0	830	1531	1187	1775	0	0	3421	0	0	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176		6							36
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		242			177			151			222	
Travel Time (s)		5.5			4.0			4.1			6.1	
Confl. Peds. (#/hr)	2					2			3	3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	110	176	53	628	58	0	1308	3	0	488	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	155	176	53	686	0	0	1311	0	0	488	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2			2			2	1
Detector Template	Left	Thru	Right	Left	Thru			Thru			Thru	Right
Leading Detector (ft)	20	100	20	20	100			100			100	20
Trailing Detector (ft)	0	0	0	0	0			0			0	0
Detector 1 Position(ft)	0	0	0	0	0			0			0	0
Detector 1 Size(ft)	20	6	20	20	6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA			NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2								8

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6	2	2			4			8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0			19.0			19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0			25.0			25.0	25.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0			46.0			46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%			51.1%			51.1%	51.1%
Maximum Green (s)	38.0	38.0	38.0	38.0	38.0			40.0			40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	3.0
Recall Mode	Max	Max	Max	Max	Max			None			None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		38.0	38.0	38.0	38.0			38.9			38.9	38.9
Actuated g/C Ratio		0.43	0.43	0.43	0.43			0.44			0.44	0.44
v/c Ratio		0.44	0.23	0.10	0.90			0.88			0.33	0.04
Control Delay		23.6	3.7	16.6	41.1			30.9			17.1	4.5
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		23.6	3.7	16.6	41.1			30.9			17.1	4.5
LOS		C	A	B	D			C			B	A
Approach Delay		13.0			39.4			30.9			16.4	
Approach LOS		B			D			C			B	
Queue Length 50th (ft)		63	3	18	354			342			91	0
Queue Length 95th (ft)		122	39	41	#581			440			127	13
Internal Link Dist (ft)		162			97			71			142	
Turn Bay Length (ft)												
Base Capacity (vph)		355	755	507	762			1540			1540	709
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.44	0.23	0.10	0.90			0.85			0.32	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 28.4		Intersection LOS: C	
Intersection Capacity Utilization 84.7%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



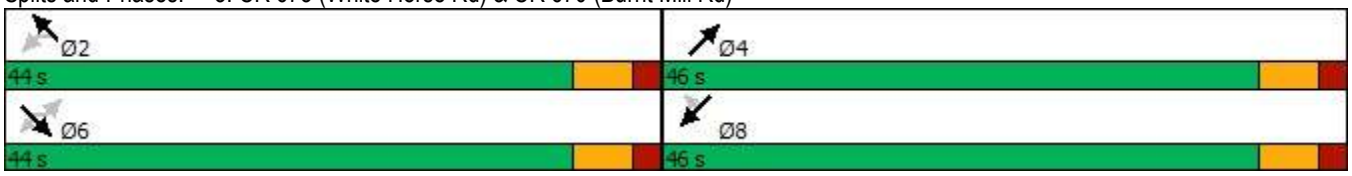
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	64	198	319	38	379	54	0	830	9	0	746	67
Future Volume (vph)	64	198	319	38	379	54	0	830	9	0	746	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00	0.99	1.00	1.00			1.00				
Frt			0.850		0.981			0.998				0.850
Flt Protected		0.988		0.950								
Satd. Flow (prot)	0	1779	1531	1711	1763	0	0	3413	0	0	3421	1531
Flt Permitted		0.763		0.559								
Satd. Flow (perm)	0	1374	1510	1006	1763	0	0	3413	0	0	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97		10			2				73
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		242			177			151			222	
Travel Time (s)		5.5			4.0			4.1			6.1	
Confl. Peds. (#/hr)	1		1	1		1			3	3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	215	347	41	412	59	0	902	10	0	811	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	285	347	41	471	0	0	912	0	0	811	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2			2			2	1
Detector Template	Left	Thru	Right	Left	Thru			Thru			Thru	Right
Leading Detector (ft)	20	100	20	20	100			100			100	20
Trailing Detector (ft)	0	0	0	0	0			0			0	0
Detector 1 Position(ft)	0	0	0	0	0			0			0	0
Detector 1 Size(ft)	20	6	20	20	6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA			NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2								8

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6	2	2			4			8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0			19.0			19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0			25.0			25.0	25.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0			46.0			46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%			51.1%			51.1%	51.1%
Maximum Green (s)	38.0	38.0	38.0	38.0	38.0			40.0			40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	3.0
Recall Mode	Max	Max	Max	Max	Max			None			None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		38.3	38.3	38.3	38.3			29.0			29.0	29.0
Actuated g/C Ratio		0.48	0.48	0.48	0.48			0.37			0.37	0.37
v/c Ratio		0.43	0.45	0.08	0.55			0.73			0.65	0.12
Control Delay		17.7	12.9	14.2	18.8			25.2			23.2	4.4
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		17.7	12.9	14.2	18.8			25.2			23.2	4.4
LOS		B	B	B	B			C			C	A
Approach Delay		15.1			18.4			25.2			21.6	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)		89	76	10	151			199			171	0
Queue Length 95th (ft)		192	181	34	305			262			225	23
Internal Link Dist (ft)		162			97			71			142	
Turn Bay Length (ft)												
Base Capacity (vph)		662	778	484	854			1732			1735	812
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.43	0.45	0.08	0.55			0.53			0.47	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 79.4
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 78.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	50	122	196	59	698	64	0	1453	4	0	542	34
Future Volume (vph)	50	122	196	59	698	64	0	1453	4	0	542	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					1.00			1.00				
Frt			0.850		0.987							0.850
Flt Protected		0.986		0.950								
Satd. Flow (prot)	0	1775	1531	1711	1775	0	0	3421	0	0	3421	1531
Flt Permitted		0.223		0.640								
Satd. Flow (perm)	0	402	1531	1152	1775	0	0	3421	0	0	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			183		7							37
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		242			177			151			222	
Travel Time (s)		5.5			4.0			4.1			6.1	
Confl. Peds. (#/hr)	2					2			3	3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	133	213	64	759	70	0	1579	4	0	589	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	187	213	64	829	0	0	1583	0	0	589	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2			2			2	1
Detector Template	Left	Thru	Right	Left	Thru			Thru			Thru	Right
Leading Detector (ft)	20	100	20	20	100			100			100	20
Trailing Detector (ft)	0	0	0	0	0			0			0	0
Detector 1 Position(ft)	0	0	0	0	0			0			0	0
Detector 1 Size(ft)	20	6	20	20	6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA			NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2								8

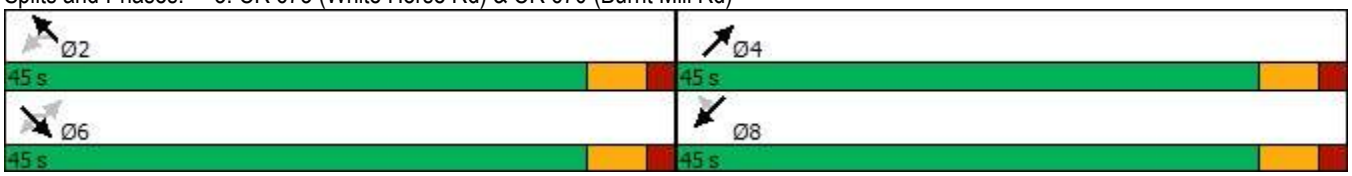
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6	2	2			4			8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0			19.0			19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0			25.0			25.0	25.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0			45.0			45.0	45.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%			50.0%			50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0			39.0			39.0	39.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	3.0
Recall Mode	Max	Max	Max	Max	Max			None			None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		39.0	39.0	39.0	39.0			39.0			39.0	39.0
Actuated g/C Ratio		0.43	0.43	0.43	0.43			0.43			0.43	0.43
v/c Ratio		1.07	0.28	0.13	1.07			1.07			0.40	0.05
Control Delay		119.2	4.8	16.3	80.3			70.4			18.5	5.4
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		119.2	4.8	16.3	80.3			70.4			18.5	5.4
LOS		F	A	B	F			E			B	A
Approach Delay		58.3			75.7			70.4			17.7	
Approach LOS		E			E			E			B	
Queue Length 50th (ft)		~119	12	21	~528			~529			117	0
Queue Length 95th (ft)		#253	53	47	#756			#664			160	17
Internal Link Dist (ft)		162			97			71			142	
Turn Bay Length (ft)												
Base Capacity (vph)		174	767	499	773			1482			1482	684
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		1.07	0.28	0.13	1.07			1.07			0.40	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 61.0 Intersection LOS: E
Intersection Capacity Utilization 100.7% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)

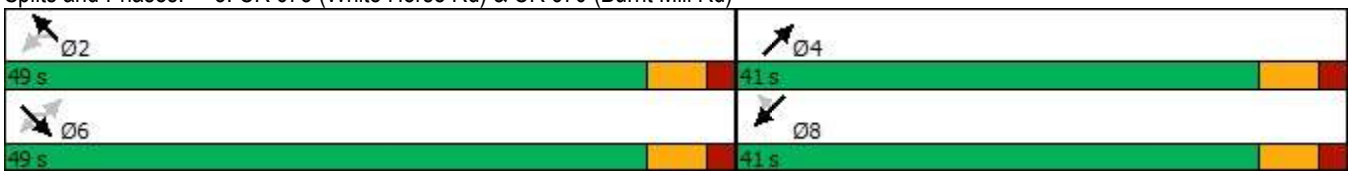


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	77	239	385	46	458	65	0	1003	11	0	901	81
Future Volume (vph)	77	239	385	46	458	65	0	1003	11	0	901	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00	0.99	1.00	1.00			1.00				
Frt			0.850		0.981			0.998				0.850
Flt Protected		0.988		0.950								
Satd. Flow (prot)	0	1779	1531	1711	1763	0	0	3413	0	0	3421	1531
Flt Permitted		0.597		0.493								
Satd. Flow (perm)	0	1075	1510	887	1763	0	0	3413	0	0	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37		11			1				88
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		242			177			151			222	
Travel Time (s)		5.5			4.0			4.1			6.1	
Confl. Peds. (#/hr)	1		1	1		1			3	3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	260	418	50	498	71	0	1090	12	0	979	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	344	418	50	569	0	0	1102	0	0	979	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2			2			2	1
Detector Template	Left	Thru	Right	Left	Thru			Thru			Thru	Right
Leading Detector (ft)	20	100	20	20	100			100			100	20
Trailing Detector (ft)	0	0	0	0	0			0			0	0
Detector 1 Position(ft)	0	0	0	0	0			0			0	0
Detector 1 Size(ft)	20	6	20	20	6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA			NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2								8

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6	2	2			4			8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0			19.0			19.0	19.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0			25.0			25.0	25.0
Total Split (s)	49.0	49.0	49.0	49.0	49.0			41.0			41.0	41.0
Total Split (%)	54.4%	54.4%	54.4%	54.4%	54.4%			45.6%			45.6%	45.6%
Maximum Green (s)	43.0	43.0	43.0	43.0	43.0			35.0			35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0			6.0			6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	3.0
Recall Mode	Max	Max	Max	Max	Max			None			None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)		43.1	43.1	43.1	43.1			33.5			33.5	33.5
Actuated g/C Ratio		0.49	0.49	0.49	0.49			0.38			0.38	0.38
v/c Ratio		0.66	0.56	0.12	0.66			0.85			0.76	0.14
Control Delay		25.2	18.3	14.0	21.8			33.0			28.4	4.8
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay		25.2	18.3	14.0	21.8			33.0			28.4	4.8
LOS		C	B	B	C			C			C	A
Approach Delay		21.4			21.2			33.0			26.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		147	151	15	234			291			245	0
Queue Length 95th (ft)		m250	243	37	353			376			320	28
Internal Link Dist (ft)		162			97			71			142	
Turn Bay Length (ft)												
Base Capacity (vph)		522	752	430	862			1350			1353	658
Starvation Cap Reductn		0	0	0	0			0			0	0
Spillback Cap Reductn		0	0	0	0			0			0	0
Storage Cap Reductn		0	0	0	0			0			0	0
Reduced v/c Ratio		0.66	0.56	0.12	0.66			0.82			0.72	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: CR 673 (White Horse Rd) & CR 670 (Burnt Mill Rd)



Intersection	
Intersection Delay, s/veh	10.0
Intersection LOS	B

Approach	SE	NW	NE	SW
Entry Lanes	0	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	271	1192	497
Demand Flow Rate, veh/h	0	276	1216	507
Vehicles Circulating, veh/h	546	1257	151	618
Vehicles Exiting, veh/h	579	110	523	915
Ped Vol Crossing Leg, #/h	0	3	0	2
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	0.0	19.7	8.6	8.3
Approach LOS	-	C	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.470	0.530	0.469	0.531
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	276	572	644	238	269
Cap Entry Lane, veh/h	488	1175	1249	765	840
Entry HV Adj Factor	0.982	0.979	0.981	0.982	0.979
Flow Entry, veh/h	271	560	632	234	263
Cap Entry, veh/h	479	1151	1225	750	822
V/C Ratio	0.566	0.487	0.516	0.312	0.321
Control Delay, s/veh	19.7	8.5	8.6	8.5	8.0
LOS	C	A	A	A	A
95th %tile Queue, veh	3	3	3	1	1

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Approach	SE	NW	NE	SW
Entry Lanes	0	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	226	804	847
Demand Flow Rate, veh/h	0	230	820	864
Vehicles Circulating, veh/h	843	879	278	381
Vehicles Exiting, veh/h	402	219	798	728
Ped Vol Crossing Leg, #/h	0	3	1	1
Ped Cap Adj	1.000	1.000	0.999	0.999
Approach Delay, s/veh	0.0	10.0	7.3	8.7
Approach LOS	-	A	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	230	385	435	406	458
Cap Entry Lane, veh/h	673	1045	1121	951	1027
Entry HV Adj Factor	0.981	0.982	0.980	0.981	0.981
Flow Entry, veh/h	226	378	426	398	449
Cap Entry, veh/h	659	1025	1098	932	1006
V/C Ratio	0.342	0.369	0.388	0.427	0.446
Control Delay, s/veh	10.0	7.4	7.3	8.9	8.7
LOS	A	A	A	A	A
95th %tile Queue, veh	2	2	2	2	2

Intersection	
Intersection Delay, s/veh	16.9
Intersection LOS	C

Approach	SE	NW	NE	SW
Entry Lanes	0	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	328	1441	601
Demand Flow Rate, veh/h	0	335	1469	614
Vehicles Circulating, veh/h	662	1518	212	747
Vehicles Exiting, veh/h	699	163	633	1106
Ped Vol Crossing Leg, #/h	0	3	0	2
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	0.0	49.8	11.9	11.1
Approach LOS	-	E	B	B

Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.470	0.530	0.471	0.529
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	335	690	779	289	325
Cap Entry Lane, veh/h	391	1111	1186	679	753
Entry HV Adj Factor	0.980	0.981	0.980	0.978	0.980
Flow Entry, veh/h	328	677	764	283	319
Cap Entry, veh/h	383	1090	1162	664	737
V/C Ratio	0.857	0.621	0.657	0.426	0.432
Control Delay, s/veh	49.8	11.7	12.1	11.5	10.7
LOS	E	B	B	B	B
95th %tile Queue, veh	8	5	5	2	2

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Approach	SE	NW	NE	SW
Entry Lanes	0	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	273	972	1023
Demand Flow Rate, veh/h	0	278	991	1044
Vehicles Circulating, veh/h	1018	1062	336	461
Vehicles Exiting, veh/h	487	265	964	879
Ped Vol Crossing Leg, #/h	0	3	1	1
Ped Cap Adj	1.000	1.000	0.999	0.999
Approach Delay, s/veh	0.0	14.6	9.3	11.9
Approach LOS	-	B	A	B

Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	278	466	525	491	553
Cap Entry Lane, veh/h	576	991	1067	883	960
Entry HV Adj Factor	0.982	0.980	0.981	0.980	0.981
Flow Entry, veh/h	273	457	515	481	542
Cap Entry, veh/h	566	970	1046	865	941
V/C Ratio	0.483	0.471	0.492	0.556	0.577
Control Delay, s/veh	14.6	9.3	9.2	12.0	11.8
LOS	B	A	A	B	B
95th %tile Queue, veh	3	3	3	4	4

APPENDIX Q

Alternatives & Preliminary Preferred Alternative (PPA)

TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Ground Coordinates

PROPOSED
Wawa
WB0T
5,051 SF
(55 STORES)

LOADING ZONE

STOP

6"V CONSTRUCTION CURB

PRELIMINARY PREFERRED ALTERNATIVE (PPA)

40' 0 40' 80'

CAMDEN COUNTY ENGINEERING

ALTERNATIVE 2

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

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SCALE: AS SHOWN

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grid Coordinates

1769

2980

3237

1033©

2549

PROPOSED

Wawa

W501

5,063 SF

(50 SPACES)

61.4'

LOADING ZONE

N49° 49' 45"E (DR1&DR2) 500.00' (S)

S49° 49' 45"W (DR1 & 2) 500.00' (S)

300.00' (DR1)

200.00' (DR2)

250.00' (DR2)

250.00' (DR1)

N40° 10' 15"W

S40° 10' 15"E

Cap Fnd.

STOP

ONLY

DIKE

40' 0 40' 80'

CAMDEN COUNTY ENGINEERING

ALTERNATIVE 3

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N.J. State Plane Ground Coordinates

PROPOSED
WAWA
WSOT
5,051 SF
(55 SPACES)

100' FRONT YARD SETBACK

50' RESIDENTIAL BUFFER

LOADING ZONE

445' AASHTO SIGHT TRIANGLE

N49° 49' 45"E (DR1&DR2) 500.00'

500.00' (S) S49° 49' 45"W (DR1 & 2)

200.00' (DR2)

300.00' (DR1)

250.00' (DR1)

Cap Fnd.

40' 0 40' 80'

CAMDEN COUNTY ENGINEERING

ALTERNATIVE 4

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

NEW IMPERVIOUS AREAS: 735 SF

NEW IMPERVIOUS AREAS: 415 SF

NEW IMPERVIOUS AREAS: 685 SF

COMM. MH RIM=64.84

COMM. MH RIM=64.81

COMM. MH RIM=65.82

COMM. MH RIM=65.82

NEW IMPERVIOUS AREAS: 345 SF

NEW IMPERVIOUS AREAS: 990 SF

NEW IMPERVIOUS AREAS: 1,520 SF

NEW IMPERVIOUS AREAS: 1,200 SF

NEW IMPERVIOUS AREAS: 720 SF

45' AASHTO SIGHT TRIANGLE (35 MPH)

ONLY

STOP

PROPOSED Wawa WaWa 5,051 SF (55 SPACES)

61.4'

82.7'

LOADING ZONE

NEW IMPERVIOUS AREAS

DISTURBANCE AREAS

TOTAL NEW IMPERVIOUS AREA: 6,610 SF / 0.152 AC

TOTAL DISTURBANCE AREA: 21,192 SF / 0.487 AC

CAMDEN COUNTY ENGINEERING

IMPERVIOUS AREAS

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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APPENDIX R

Right-of-Way Impacts

TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N.J. State Plane Ground Coordinates

BLOCK 80
LOT 10
FEE TAKE
100 SF

BLOCK 80
LOT 3
FEE TAKE
215 SF

BLOCK 80
LOT 9
FEE TAKE
240 SF

BLOCK 80
LOT 8
FEE TAKE
1100 SF

BLOCK 73
LOT 6
FEE TAKE
305 SF

PROPOSED R.O.W.

CR 670 – BURNT MILL ROAD

CR 673 – WHITE HORSE ROAD

PROPOSED R.O.W.

PROPOSED R.O.W.

BLOCK 178
LOT 2
FEE TAKE
4950 SF

PROPOSED
Wawa
WSIOT
5,057 SF
(55 SPACES)

BLOCK 179
LOT 1
FEE TAKE
2475 SF

BLOCK 179
LOT 2
FEE TAKE
680 SF

BLOCK 179
LOT 3.01
FEE TAKE
235 SF

BLOCK 179
LOT 3
FEE TAKE
225 SF

STAGE 1 CONSTRUCTION

CAMDEN COUNTY ENGINEERING

R.O.W. IMPACT PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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APPENDIX S

Staging & Local Detour

TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
Wawa
W80T
5,053 SF
(55 SPACES)
61'-4"
93'-7"
LOADING ZONE

ONLY
ONLY

STAGE 1A CONSTRUCTION

CONSTRUCT CURB AND SIDEWALK AT SOUTHEAST CORNER,
OUTSIDE THRU-LANE ON CR 673 NORTHBOUND

40' 0 40' 80'

TC-1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
W30T
5,051 SF
(55 SPACES)

LOADING ZONE

STOP

ONLY

STAGE 1B CONSTRUCTION

CONSTRUCT CURB AND SIDEWALK AT SOUTHWEST CORNER,
OUTSIDE THRU-LANE ON CR 673 NORTHBOUND

40' 0 40' 80'

TC-1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

ONLY

ONLY

ONLY

PROPOSED
W50T
5,053 SF
(55 SPACES)
61.4'
92.7'
LOADING ZONE
STOP

STAGE 1C CONSTRUCTION
CONSTRUCT OUTSIDE THRU-LANE ON CR 673 NORTHBOUND

40' 0 40' 80'

TC-1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
Wawa
W80T
5,051 SF
(55 SPACES)
61.4'
82.7'
LOMONT ZONE

STOP

STAGE 1D CONSTRUCTION

CONSTRUCT CENTER OF CR 670 SOUTH OF INTERSECTION

40' 0 40' 80'

TC–1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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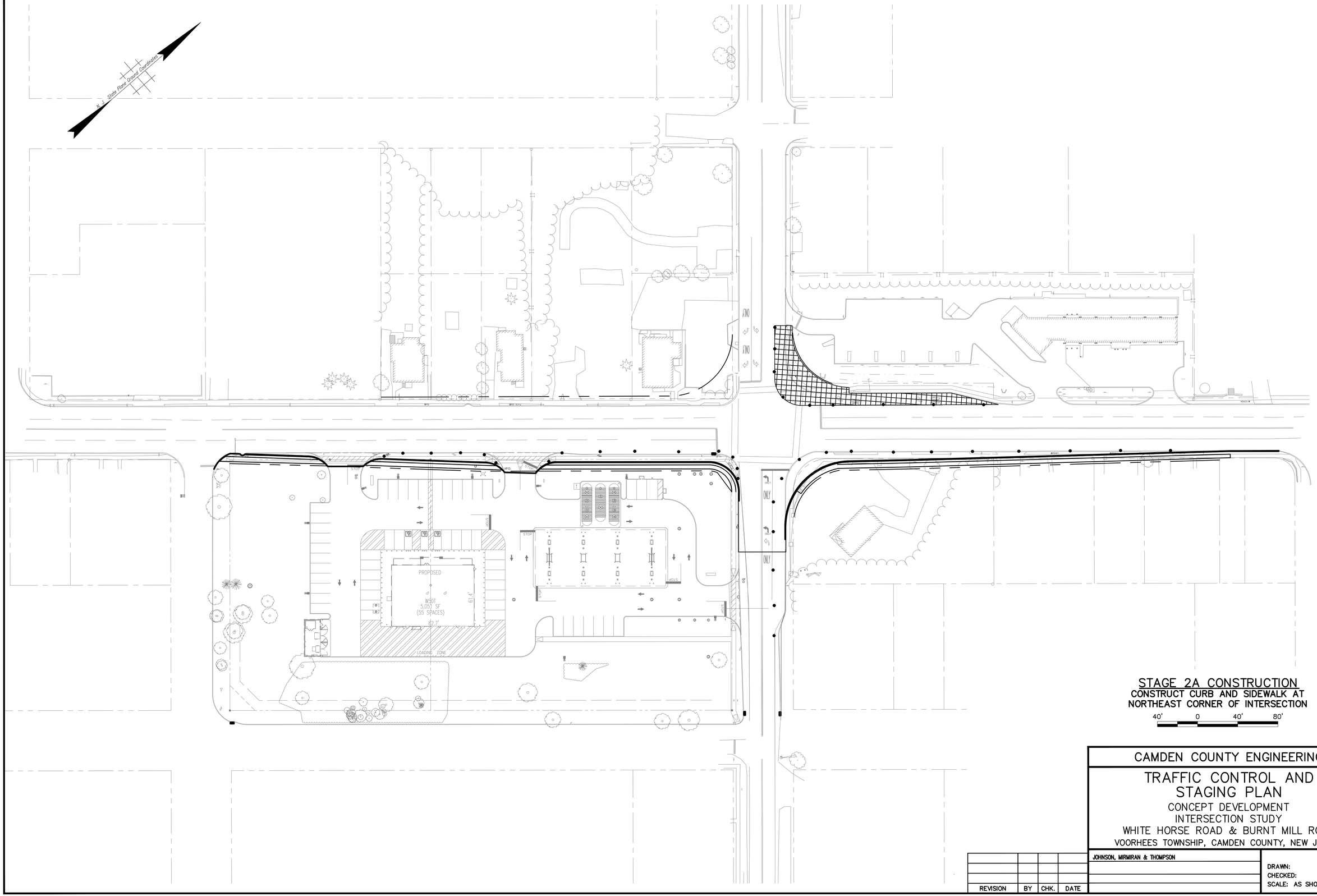
TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grid Coordinates



STAGE 2A CONSTRUCTION

CONSTRUCT CURB AND SIDEWALK AT NORTHEAST CORNER OF INTERSECTION

40' 0 40' 80'

TC–
TC–1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grid Coordinates

PROPOSED
W30T
5,051 SF
(55 SPACES)
61.4'
82.7'

LOADING ZONE

STOP

ONLY

STAGE 2B CONSTRUCTION

CONSTRUCT CURB AND SIDEWALK AT NORTHWEST CORNER,
OUTSIDE THRU-LANE ON CR 673 SOUTHBOUND

40' 0 40' 80'

TC-1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
W30T
5,051 SF
(55 SPACES)
61.4'
82.7'
LOADING ZONE
STOP
ONLY

STAGE 2C CONSTRUCTION

CONSTRUCT CENTER OF CR 670
NORTH OF INTERSECTION

40' 0 40' 80'

TC–
TC–1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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SCALE: AS SHOWN

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
W30T
5,051 SF
(55 SPACES)

LOADING ZONE

ONLY

STOP

STAGE 3A CONSTRUCTION

CONSTRUCT CONCRETE MEDIAN, LEFT TURN LANES

40' 0 40' 80'

TC–
TC–1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

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SCALE: AS SHOWN

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
Wawa
WSOT
5,051 SF
(55 SPACES)

LOADING ZONE

ONLY

STOP

STAGE 3B CONSTRUCTION

CONSTRUCT RIGHT TURN AND OUTSIDE THRU-LANE ON CR 673 SOUTHBOUND

40' 0 40' 80'

TC-1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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SCALE: AS SHOWN

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TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

N. J. State Plane Grand Coordinates

PROPOSED
Wawa
WISOT
5,051 SF
(55 SPACES)

LOADING ZONE

STOP

ONLY

STAGE 3C CONSTRUCTION

CONSTRUCT OUTSIDE THRU-LANE ON CR 673 SOUTHBOUND

40' 0 40' 80'

TC-1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

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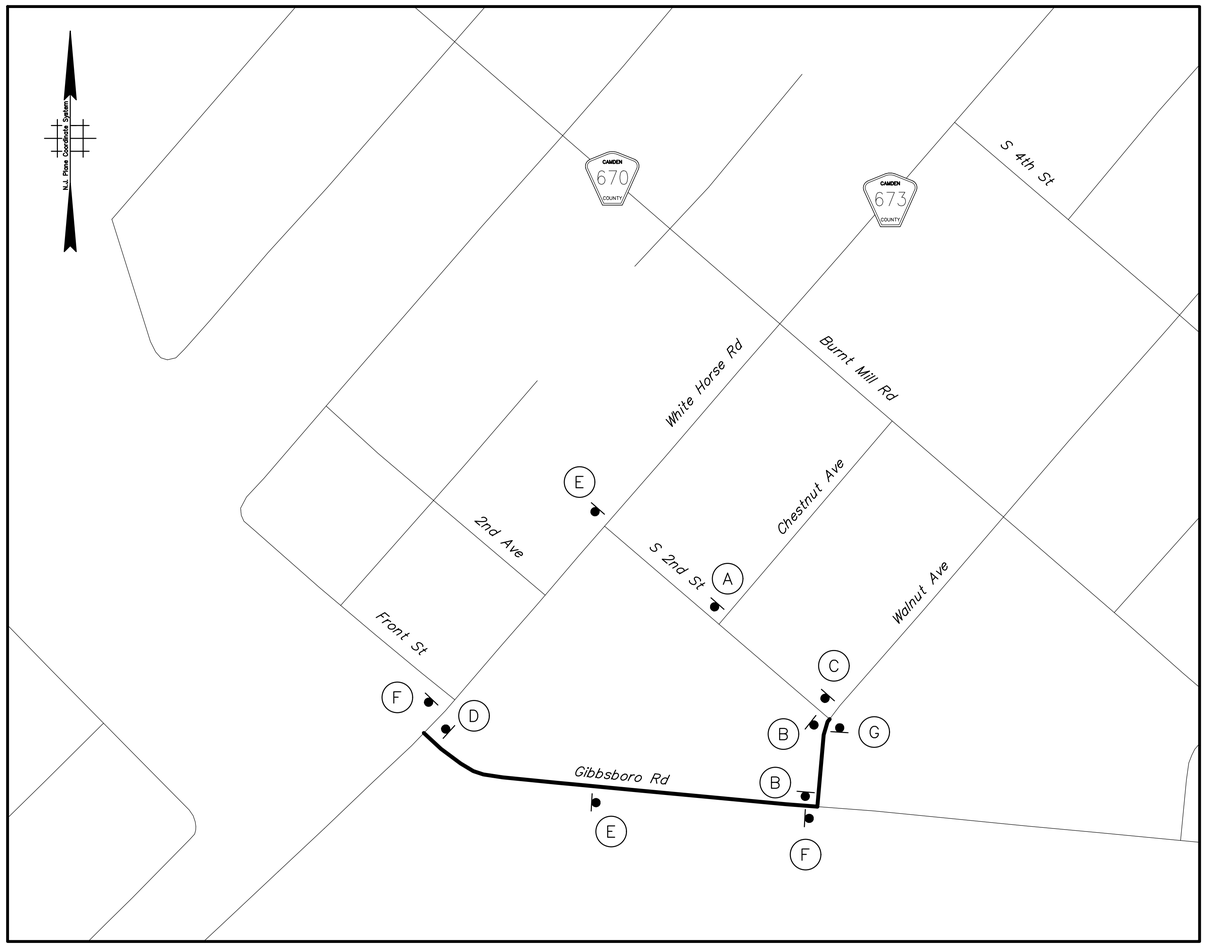
TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

STANDARD SIGNS

A		M4–8 24"X12" BLK/ORN M3–1 24"X12" YEL/BLUE M1–6 24"X24" YEL/BLUE M6–1L 21"X15" YEL/BLUE
B		M4–8 24"X12" BLK/ORN M3–3 24"X12" YEL/BLUE M1–6 24"X24" YEL/BLUE M6–1L 21"X15" YEL/BLUE
C		M4–8 24"X12" BLK/ORN M3–3 24"X12" YEL/BLUE M1–6 24"X24" YEL/BLUE M6–1L 21"X15" YEL/BLUE
D		M4–8A 24"X18" BLK/ORN M3–3 24"X12" YEL/BLUE M1–6 24"X24" YEL/BLUE
E		M4–9N 30"X18" BLK/ORN M4–9L(MOD) 30"X24" BLK/ORN
F		M4–9N 30"X18" BLK/ORN M4–9L 30"X24" BLK/ORN
G		M4–9N 30"X18" BLK/ORN M4–8A 24"X18" BLK/ORN



DETOUR PLANS

N.T.S.

TC–1

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

NOTES:

1. LEFT TURNS BETWEEN WHITE HORSE ROAD (CR 673) AND BURNT MILL ROAD (CR 670) WILL NOT BE PERMITTED DURING CONSTRUCTION. A DETOUR THROUGH GIBBSBORO ROAD WILL BE USED.

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

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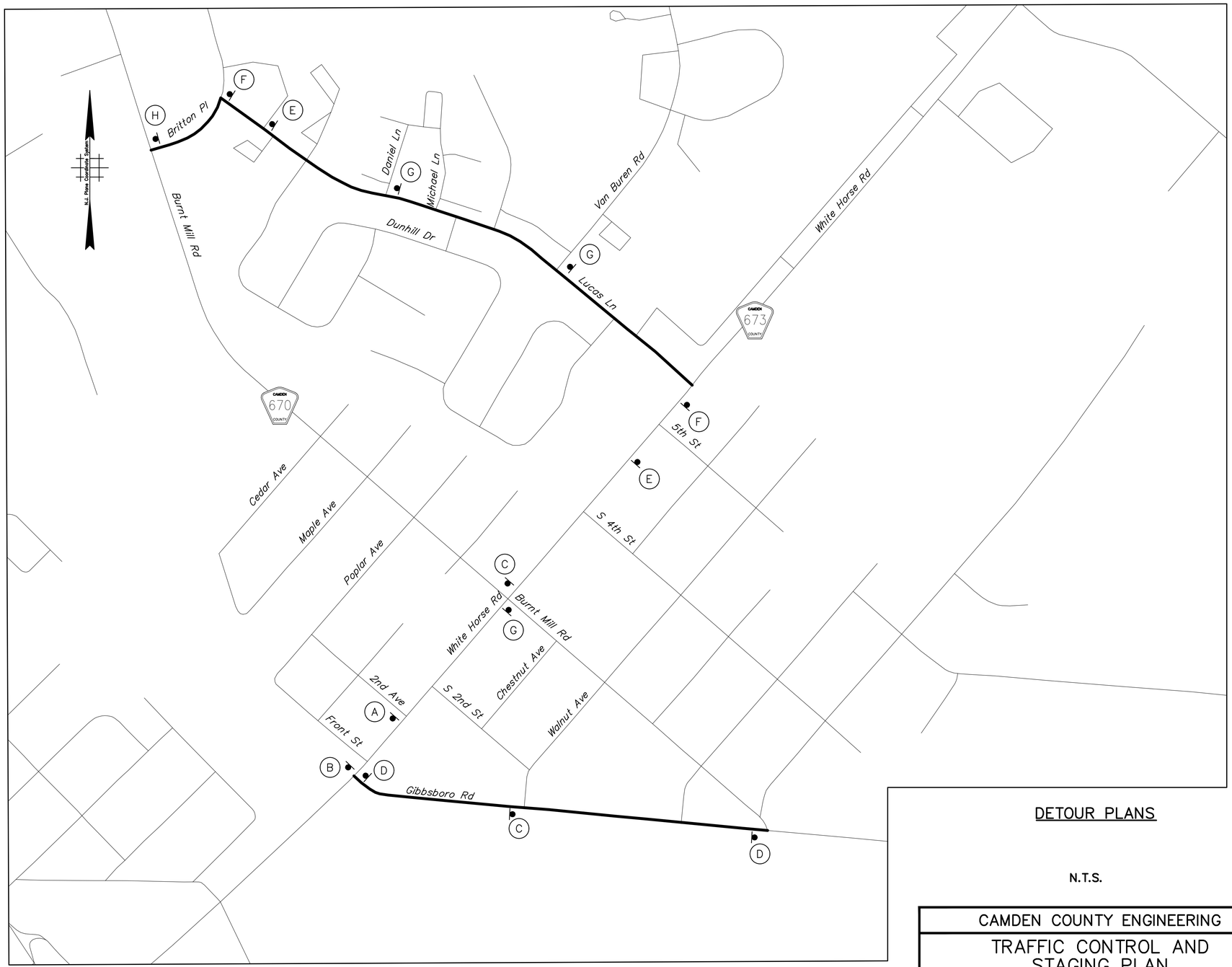
TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

STANDARD SIGNS

A	DETOUR / SOUTH / CAMDEN 670 COUNTY / NEXT LEFT	M4-8 24"X12" BLK/ORN M3-3 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE M(NJ)8-2L 21"X15" YEL/BLUE
B	DETOUR / SOUTH / CAMDEN 670 COUNTY / ←	M4-8 24"X12" BLK/ORN M3-3 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE M6-1L 21"X15" YEL/BLUE
C	DETOUR / SOUTH / CAMDEN 670 COUNTY / ↑	M4-8 24"X12" BLK/ORN M3-3 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE M6-3 21"X15" YEL/BLUE
D	END DETOUR / SOUTH / CAMDEN 670 COUNTY	M4-8A 24"X18" BLK/ORN M3-3 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE
E	DETOUR / NORTH / CAMDEN 670 COUNTY / NEXT LEFT	M4-8 24"X12" BLK/ORN M3-1 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE M(NJ)8-2L 21"X15" YEL/BLUE
F	DETOUR / NORTH / CAMDEN 670 COUNTY / ←	M4-8 24"X12" BLK/ORN M3-1 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE M6-1L 21"X15" YEL/BLUE
G	DETOUR / NORTH / CAMDEN 670 COUNTY / ↑	M4-8 24"X12" BLK/ORN M3-1 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE M6-3 21"X15" YEL/BLUE
H	END DETOUR / NORTH / CAMDEN 670 COUNTY	M4-8A 24"X18" BLK/ORN M3-1 24"X12" YEL/BLUE M1-6 24"X24" YEL/BLUE



DETOUR PLANS

N.T.S.

TC–1

NOTES:

1. LEFT TURNS BETWEEN WHITE HORSE ROAD (CR 673) AND BURNT MILL ROAD (CR 670) WILL NOT BE PERMITTED DURING CONSTRUCTION. A DETOUR THROUGH GIBBSBORO ROAD AND LUCAS LANE WILL BE USED.

CAMDEN COUNTY ENGINEERING

TRAFFIC CONTROL AND STAGING PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

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SCALE: AS SHOWN

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APPENDIX T

Risk Register

NJDOT RISK MANAGEMENT

PROJECT RISK REGISTER

Project Manager:	Brian Derr	**Municipality(ies):**	Township of Vorhees
Designer:	Johnson, Mirmiran & Thompson, Inc.	**County(ies):**	Camden County
NJDOT Project Job No.:		**Initial Register Date:**	10/26/2023
NJDOT UPC #:		**Last Register Update:**	

Project Name: Concept Development Intersection Study for CR 670 (Burnt Mill Road) and CR 673 (White Horse Road)

Risk Rank & ID		Risk Statement & Category			Risk Analysis Matrix						Risk Response Strategy & Response Planning				
			Risk Category			Risk Impact									
Risk Rank	Unique ID #	Risk Statement	Initial Risk Owner	Risk May Occur In	Risk Probability	Schedule	Cost	Schedule Score	Cost Score	Final Score	Risk Response Strategy	Risk Response Action Plan	Final Risk Owner	Action Plan Status	Risk Last Updated
1	1	As a result of weather delays during construction which may occur, which would lead to schedule delays	Construction	Construction	5 - Very High	10 - Very High	4 - Moderate	50	20	70	Accept Threat	Have a contingency shown in contract documents that will allow for unforseen issues such as weather delays	Contractor and NJDOT		
11	2	As a result of utilities not moved in adequate time for construction which may occur, which would lead to schedule delays	Construction	Construction	4 - High	4 - Moderate	1 - Very Low	16	4	20	Mitigate Threat	Schedule advanced utility relocations to remove this task from the critical path	Designer and NJDOT		
3	3	As a result of the contractor with a poor performance record or inexperienced winning the project which may occur, which would lead to poor construction and overall project delays and claims	Construction	Construction	2 - Low	10 - Very High	10 - Very High	20	20	40	Mitigate Threat	Approved work types that describe this project must be chosen to weed out inexeperienced contractors	Designer and NJDOT		
16	4	Maintaining adequate access during construction/staging may be difficult, resulting in business impacts	Access	Construction	3 - Moderate	4 - Moderate	1 - Very Low	12	3	15	Accept Threat	The contractor must maintain access during construction for all properties effected	Contractor and Designer		
19	5	Property owners may not be cooperative with access alterations, modications, or revocations	Access	Final Design	2 - Low	2 - Low	2 - Low	4	4	8	Mitigate Threat	The designer must initiate access design tasks early during the engineering phase	Designer and NJDOT		
6	6	The latest 3-year crash analysis which is performed for the Design Exception Report during PE or FD, may contradict the previous rcash analysis performd during CD, resulting in redesign due to need to rescind previously approval CSDE's or requriing new CSDE's.	Geometric Design	Preliminary Engineering	3 - Moderate	4 - Moderate	4 - Moderate	12	12	24	Accept Threat	When the time comes to prepare a new Design Exception Report, a new crash analysis should be conducted and reflected in the design	Designer and NJDOT		
6	7	Existing utiliy pole offsets behind curb, or behind gudie rail, or within the guide rail recovery area, do not meet minimum standards, resulting in utility pole relocation, or ROW impacts	Geometric Design	Preliminary Engineering	3 - Moderate	4 - Moderate	4 - Moderate	12	12	24	Accept Threat	Any utility conflicts should be identified between the designer and utility companies early in engineering phase	Designer		
2	8	Contractor may encounter unforeseen subsurface obstructions, or differing site conditions, or climatic conditions may be different than what was considered during project design, necessitating changes in construction techniques, and/or schedules, and/or change of plan prior to completing the construction work	Construction	Construction	3 - Moderate	10 - Very High	7 - High	30	21	51	Avoid Threat	If the contractor encounters unforseen objects in the field, it is important that the constructability of the design is maintained although construction methods may have to change	Contractor and Designer		
9	9	Construction excavation may expose a previously unidentified, unsuitable materials/condition than anticipated/presented in the contract documents, resulting in changes in disposal	Construction	Construction	2 - Low	4 - Moderate	7 - High	8	14	22	Mitigate Threat	Unsuitable/contaminated soil is located at the abandoned gas station property. It is important that measures are put in place before any construction activities	Contractor and NJDOT		
12	10	School buses, mail carriers, fire trucks, emergency vehicles or other local traffic may require special maintenance of traffic provisions	Traffic Operations	Final Design	4 - High	2 - Low	2 - Low	8	8	16	Mitigate Threat	There is a local fire department south of the intersection. The designer must take this into consideration when developing detour/staging plans	Designer and NJDOT		
6	11	Coordination with external agencies, such as NJ Transit will be required and any requirements addressed in final contract documents causing additional costs and delays	Project Management	Preliminary Engineering	4 - High	4 - Moderate	2 - Low	16	8	24	Mitigate Threat	NJ Transit has two bus routes that run through the project site. The designer and NJDOT will coordinate with NJ Transit to prevent any unforseen conflicts during construction.	Designer and NJDOT		

https://www.nj.gov/transportation/capital/pd/documents/SampleRiskList.pdf
https://www.nj.gov/transportation/capital/pd/documents/RiskRegisterExample.pdf

APPENDIX U

Utility Risk Assessment Plan

TOWNSHIP OF VOORHEES

COUNTY OF CAMDEN

UTILITY RISKS

I. EXAMPLES OF DIRECT UTILITY RISKS (UTILITY DESIGN CONSTRAINTS)

1. LOADING IMPOSED ON UTILITIES FROM PERMANENT OR TEMPORARY (STAGED ROADWAY EXCAVATION/GRADING AFFECTING DEPTH OF BURY.
2. DRAINAGE INFRASTRUCTURE CONFLICTS.
3. TRAFFIC SIGNAL AND LIGHTING CONFLICTS WITH AERIAL FACILITIES.
4. TRAFFIC SIGNAL FOUNDATION CONFLICTS.
5. OTHER.

II. EXAMPLES OF INDIRECT UTILITY RISKS (UTILITY DESIGN CONSIDERATIONS)

1. AGE OF THE UTILITY MAY RENDER IT SENSITIVE TO IMPACTS FROM ADJACENT CONSTRUCTION ACTIVITIES SUCH AS EQUIPMENT TRAFFIC/OPERATION, COMPACTION VIBRATION AND EXCAVATION.
2. UTILITY MATERIAL MAY NOT WITHSTAND ADJACENT CONSTRUCTION ACTIVITIES SUCH WITH MATERIALS THAT MAY INCLUDE TRANSITE DUCTS, WOOD DUCTS, CLAY PIPE, CAST IRON PIPE, BRICK PIPE/MANHOLE, FIBER OPTIC.
3. SEASONAL RESTRICTIONS MAY BE REQUIRED BY UTILITY OWNERS FOR SHUT DOWNS AND INTERRUPTION OF SERVICE.
4. TEMPORARY REDUCED DEPTH OF BURY (I.E. PAVEMENT BOX EXCAVATIONS), EXPOSING EXISTING UNDERGROUND UTILITIES TO CONSTRUCTION TRAFFIC AND OPERATION.
5. COMPACTION VIBRATION OUTSIDE THE IMMEDIATE CONSTRUCTION AREA COULD DAMAGE EXISTING FACILITIES.
6. LIMITED ROW MAY RESTRICT EQUIPMENT OPERATIONS.
7. CONSTRUCTION EQUIPMENT REQUIREMENTS FOR ACCESS OPERATION, STORAGE AND SERVICING.
8. NON COMPLIANCE WITH REGULATORY PROVISIONS OF THE UTILITY ACCOMODATION POLICY (NJAC A6:25), THE HIGHWAY OCCUPANCY PERMIT (NJAC 16:41), OR ANY OTHER STATE OR FEDERAL REGULATIONS INVOLVING UTILITIES.
9. OTHER.

PERMITS

PERMITS RELATED TO UTILITIES

1. LICENSE TO CROSS
2. OCCUPANCY PERMIT

N.J. State Plane Ground Coordinates

CR 670 – BURNT MILL ROAD

CR 673 – WHITE HORSE ROAD

PROPOSED Wawa WSIOT 5,053 SF (55 SPACES)

LEGEND

- UTILITY POLE
- OHE — ELECTRICAL LINE
- TV — CABLE TV LINE
- T — TELECOMMUNICATION LINE
- G — GAS LINE
- W — WATER LINE
- D — STORMWATER DRAINAGE LINE

CAMDEN COUNTY ENGINEERING

UTILITY RISK ASSESSMENT PLAN

CONCEPT DEVELOPMENT
INTERSECTION STUDY
WHITE HORSE ROAD & BURNT MILL ROAD
VOORHEES TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

REVISION	BY	CHK.	DATE

JOHNSON, MIRMIRAN & THOMPSON

DRAWN:
CHECKED:
SCALE: AS SHOWN

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APPENDIX V

Complete Streets Checklist

NJDOT Complete Streets Checklist

Background

The New Jersey Department of Transportation's Complete Streets Policy promotes a "comprehensive, integrated, connected multi-modal network by providing connections to bicycling and walking trip generators such as employment, education, residential, recreational and public facilities, as well as retail and transit centers." The policy calls for the establishment of a checklist to address pedestrian, bicyclist and transit accommodations "with the presumption that they shall be included in each project unless supporting documentation against inclusion is provided and found to be justifiable."

Complete Streets Checklist

The following checklist is an accompaniment to NJDOT's Complete Streets Policy and has been developed to assist Project Managers and designers develop proposed alternatives in adherence to the policy. Being in compliance with the policy means that Project Managers and designers plan for, design, and construct all transportation projects to provide appropriate accommodation for bicyclists, pedestrians, and transit users on New Jersey's roadways, in addition to those provided for motorists. It includes people of all ages and abilities. The checklist applies to all NJDOT projects that undergo the Capital Project Delivery (CPD) Process and is intended for use on projects during the earliest stages of the Concept Development or Preliminary Engineering Phase so that any pedestrian or bicycle considerations are included in the project budget. The Project Manager is responsible for completing the checklist and must work with the Designer to ensure that the checklist has been completed prior to advancement of a project to Final Design.

Using the Complete Streets Checklist

The Complete Streets Checklist is a tool to be used by Project Managers and designers throughout Concept Development and Preliminary Engineering to ensure that all developed alternatives reflect compliance with the Policy. When completing the checklist, a brief description is required for each **"Item to be Addressed"** as a means to document that the item has been considered and can include supporting documentation.

CONCEPT DEVELOPMENT CHECKLIST

Instructions:
For each box checked, please provide a brief description for how the item is addressed, not addressed or not applicable and include documentation to support your answer.

Item to be Addressed	Checklist Consideration	YES	NO	N/A	Required Description
Existing Bicycle, Pedestrian and Transit Accommodations	Are there accommodations for bicyclists, pedestrians (including ADA compliance) and transit users included on or crossing the current facility? **Examples include (but are not limited to):** Sidewalks, public seating, bike racks, and transit shelters	☒	☐	☐	Substandard ADA ramps are located at each corner of the intersection. Bicycle accommodations are present on Burnt Mill Road (CR 670) north of the intersection.
Existing Bicycle and Pedestrian Operations	Has the existing bicycle and pedestrian suitability or level of service on the current transportation facility been identified?	☐	☒	☐	Pedestrian and bicyclist levels of service have not been identified.
	Have the bicycle and pedestrian conditions within the study area, including pedestrian and/or bicyclist treatments, volumes, important connections and lighting been identified?	☒	☐	☐	Pedestrian volume was recorded during peak AM and PM hours.
	Do bicyclists/pedestrians regularly use the transportation facility for commuting or recreation?	☐	☐	☒	
	Are there physical or perceived impediments to bicyclist or pedestrian use of the transportation facility?	☒	☐	☐	Lack of ADA compliant pedestrian ramps prevents full pedestrian use.
	Is there a higher than normal incidence of bicyclist/pedestrian crashes within the study area?	☐	☐	☒	
	Have the existing volumes of pedestrian and/or bicyclist crossing activity at intersections including midblock and nighttime	☐	☒	☐	

Item to be Addressed	Checklist Consideration	YES	NO	N/A	Required Description
	crossing been collected/provided?				
Existing Transit Operations	Are there existing transit facilities within the study area, including bus and train stops/stations?	☒	☐	☐	NJ Transit bus routes #459 & #403 go through the project area. The PATCO Lindenwold Station is approximately half-mile south of the project location.
	Is the transportation facility on a transit route?	☒	☐	☐	There are 4 bus stops near the project area.
	Is the transportation facility within two miles of "park and ride" or "kiss and go" lots?	☐	☒	☐	
	Are there existing or proposed bicycle racks, shelters, or parking available at these lots or transit stations? Are there bike racks on buses that travel along the facility?	☐	☐	☒	
Existing Motor Vehicle Operations	Are there existing concerns within the study area, regarding motor vehicle safety, traffic volumes/congestion or access?	☒	☐	☐	There are concerns of motor vehicle safety. See the purpose and need of this project.
Existing Truck/Freight Operations	Are there existing concerns within the study area, regarding truck/freight safety, volumes, or access?	☐	☒	☐	
Existing Access and Mobility	Are there any existing access or mobility considerations, including ADA compliance?	☒	☐	☐	ADA compliance is required at the intersection.

NJDOT Complete Streets Checklist

Item to be Addressed	Checklist Consideration	YES	NO	N/A	Required Description
	Are there any schools, hospitals, senior care facilities, educational buildings, community centers, residences or businesses of persons with disabilities within or proximate to the study area?	☐	☒	☐	
Land Usage	Have you identified the predominant land uses and densities within the study area, including any historic districts or special zoning districts?	☐	☒	☐	
	Is the transportation facility in a high-density land use area that has pedestrian/bicycle/motor vehicle and transit traffic?	☐	☒	☐	
Major Sites	Have you identified the major sites, destinations, and trip generators within or proximate to the study area, including prominent landmarks, employment centers, recreation, commercial, cultural and civic institutions, and public spaces?	☒	☐	☐	Nearby businesses and public spaces
Existing Streetscape	Are there existing street trees, planters, buffer strips, or other environmental enhancements such as drainage swales within the study area?	☐	☒	☐	
Existing Plans	Are there any comprehensive planning documents that address bicyclist, pedestrian or transit user conditions within or proximate to the study area? **Examples include (but are not limited to):** • SRTS Travel Plans • Municipal or County Master or Redevelopment Plan • Local, County and Statewide Bicycle and Pedestrian Plans • Sidewalk Inventories • MPO Transportation Plan • NJDOT Designated Transit Village	☒	☐	☐	Camden County Bicycling & Multi-Use Trails Plan

PROJECT MANAGER SIGN-OFF

Statement of Compliance	YES	NO	If NO, Please Describe Why (refer to Exemptions Clause)
The Preliminary Preferred Alternative (PPA) accommodates bicyclists and pedestrians as set forth in the New Jersey Department of Transportation's Complete Streets Policy.	☒	☐	The PPA accommodates pedestrians by addressing the substandard sidewalk and crossing facilities at the intersection.

APPENDIX W

Preliminary Engineering Public Involvement Action Plan

PUBLIC INVOLVEMENT ACTION PLAN (PIAP)

Concept Development Intersection Study for
Burnt Mill Road (CR 670) & White Horse Road (CR 673)

INTRODUCTION

Public participation is a critical element in the successful implementation of any project. The Public Involvement Action Plan (PIAP) is created to seek public input so that the proposed improvements address public concerns and gain public support.

BACKGROUND

The purpose of the project is to improve safety and provide congestion relief for all roadway uses at the intersection of White Horse Road (CR 673) and Burnt Mill Road (CR 670), including improving traffic operations and addressing the high crash types while minimizing impacts to ROW and local businesses. While the intersection LOS operates well today and is projected to in the future, the high number of injuries coming from crashes at the intersection is the concern. This project needs to address the higher-than-normal crash and injury rate.

The intersection experiences a much higher than normal crash rate ranking No. 2 in Camden County and No. 5 in the Delaware Valley Regional Planning Commission (DVRPC) for crashes. A high percentage of the crashes at the intersection involved injuries. The reduction of crashes and the severity of the crashes is the primary need for this project. The DVRPC's network screening intersection rankings show this intersection is ranked No. 5 in the region and No. 2 in Camden County based on crash weight factors. Summarizing the collision data from a 60-month period between January 2014 and December 2019 a total of 92 collisions reported at the intersection. The highest crashes were right angle collisions (36%), rear end (27%) collisions and left turn (15%), with fourteen (42%) of the crashes resulting in personal injury and zero resulted in a fatality (0%). Three of the crashes involved pedestrians and many of the crashes occurred during the day and in dry conditions. Compared to the statewide averages, the injury crash rate is 14% higher, right angle is 5% higher, rear end and left turn are 3% higher.

GOALS

Public participation is required to achieve community “ownership” of the proposed project. The project has gone through the conceptual design phase. and now will enter the design phase. The goals of the PIAP consist of the following:

- Educate the public about the purpose and need of the project.
- Promote an on-going public partnership, ensuring that the transportation benefits are considered within the context of the communities directly impacted by the project.
- Provide an effective mechanism for the public to offer input.
- Ensure early, frequent, and continuous consultation with the public by committing to public notification of the affected parties, citizen input in the identification of the solutions and dedication to make the public’s input meaningful.
- Assist in building public support for both agreement on the project need and the identification of possible solutions along with the selection of the PPA.
- Identify early in the process any potential “fatal flaws” that would prevent the advancement of the project or its ability to adequately address the identified need.

CONCEPTUAL DESIGN

The project has moved through to the end of concept development. The consultant and local officials had taken steps to provide stakeholders and the public with necessary information about the project. The table below shows scheduled meetings:

MEETING	DATE
STAKEHOLDERS MEETING	October 21, 2022
PUBLIC INFORMATION CENTER	December 14, 2022
PUBLIC INFORMATION CENTER/STAKEHOLDERS MEETING	December 12, 2023

PRELIMINARY AND FINAL DESIGN

The PE Phase involves performing engineering tasks and technical environmental studies. Objectives include obtaining approval from the community through a Public Information Center (PIC), approval of the environmental document and creation of an Approved Project Plan. The proposed public involvement process during Preliminary Engineering is outlined as follows:

- Update the PIAP to identify critical points for public involvement during PE.
- Hold stakeholder meetings and PICs to show the project status. Prepare the mailing list, PIC handout and presentation material. In addition to the local officials, the mailing list will be comprised of businesses and residents within a prescribed distance to the project limits.
- Develop a project website or post on an agency(s) website to facilitate the dissemination of project information. Continually update the information posted on the website(s).
- Reassess the PIAP to ensure the identified strategies still adequately address the public involvement effort for this project.

CONSTRUCTION

Once the project is progressed to the Construction phase, the PIAP will be reviewed and revised as necessary. It is important to work closely with local officials and the business community during construction to ensure the least impact on traffic and businesses caused by construction. It will be necessary to conduct pre-construction conferences and/or information centers to ensure maximum support for the construction schedule and minimal disruption to the community. Notifying the public about traffic patterns and potential delays will be important during construction of the project to facilitate positive public perception towards both the project. The following steps in the PIAP will be important during construction of the project:

- Utilize various agencies' websites to provide relevant information such as contact information, construction schedule, expected delays/lane closures, construction progress, and to solicit feedback.
- Review feedback provided by the public to determine if improvements can be instituted to construction activities.