Agenda

Huntington Planning Commission

Monday, January 6, 2025 – 5:30pm

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1. Preliminaries

2. Call to Order

3. Roll Call

4. Election of Chair and Vice Chair

5. Approval of the December 2, 2024 Minutes

6. New Business

PC 24-07

Issue: A proposal to develop a public utility installation to include a water tower and access road on a property that is approximately 0.23 acres. The property is located at 111 Kings Hwy. and zoned R-1 Single Family Residential District. The site plan must be reviewed according to the development requirements due to the hillside site being an average of more than fifteen (15) percent grade. In addition, a request for waiver to permit a slope exceeding a vertical rise of one foot for each two and one-half feet of horizontal distance will be considered.

Property Location: 111 Kings Highway
Petitioner/Property Owner: West Virginia American Water, 1600 Pennsylvania Ave., Charleston, WV.

PC 25-01

Issue: A petition to rezone property from R-2 Single-Family Residential District to I-1 Light Industrial/Commercial District. The properties are located near the intersection of Monroe Avenue and 6th Street West and consist of parcels known as 712 and 714 6th St. W. and 603 and 625 Monroe Ave.

Petitioner/Property Owner: Quantum Properties LLC, P.O. Box 1298, Huntington, WV 25714

7. Good and Welfare

8. Other Business or Announcements

9. Adjournment

Minutes
Huntington Planning Commission
December 2, 2024

A meeting of the City of Huntington Planning Commission was held on December 2, 2024 at 5:30 p.m. in the City Council Chambers, 800 5th Avenue, Huntington, WV 25701.

Members Present: Sharon Pell, Sarah Walling, Ford Rucker, Carl Eastham, Charles Shaw, Ursulette Ward

Members Absent: Stephanie Vlahos Bryant, Holly Mount

Staff Present: Stephanie Petruso, Senior Planner
Ericka Hernandez, Assistant City Attorney
Steve Curry, Associate Planner

Mr. Eastham made a motion to adopt the November 4 and November 18, 2024 minutes. *Ms. Ward* seconded the motion. All were in favor, Minutes were approved.

New Business
PC 24-08

Issue: A petition to abandon the northern ±120 ft. of an unnamed alley that connects 2000 block of 10th Avenue to the 2000 block of Guthrie Court. The petitioned abandonment is between 2001 10th Avenue and 2005 10th Avenue.

Kate Daniel introduced herself as an attorney for Campbell Woods and the representative of OEA Real Estate. She specified the location of the alley as being between 20th and 21st Street and explained that OEA owns the properties on both sides of the alley and wished to consolidate the properties. She detailed the goals for the property and stated there will be no construction of buildings across the alley. Ms. Daniel stated that her client had agreed to maintain an easement for utilities in the alley.

Mr. Curry read the staff report.

Mr. Eastham motioned to send the petition to City Council with a favorable recommendation. *Ms. Pell* seconded.

Petition passed unanimously by voice vote.

PC 24-07

Issue: Plan review a proposed development of one parcel known as Lot 7 Kinetic Park (Parcel 06-84-10) on a property that is approximately 2.2 acres and located between Fairfield Inn & Suites and Amazon Customer Service Center. The property is zoned C-2 Highway Commercial District.

Per a request from the petitioner this issue has been laid over until January.

PC 24-11

Issue: Plan review a proposed development of one parcel known as Lot 7 Kinetic Park (Parcel 06-84-10) on a property that is approximately 2.2 acres and located between Fairfield Inn & Suites and Amazon Customer Service Center. The property is zoned C-2 Highway Commercial District.

Susan Shew introduced herself as the representative for the American Red Cross and detailed plans for the site's construction and what the purpose of the building will be when it is operational. She added that all utility-related permits had been applied for including storm water.

Ms. Walling asked if the new building will be in addition to or replacing the existing American Red Cross office downtown.

Ms. Shew confirmed that the new site will replace the downtown office and the downtown office is on the market.

Mr. Curry read the staff report.

Mr. Eastham motioned to approve the petition. *Mr. Shaw* seconded.

Petition passed unanimously by voice vote.

Good and Welfare

Meeting adjourned at 5:45 pm.

Date approved: _____

Chairperson: _____ Prepared by: _____

Sarah Walling, Acting Chair Steve Curry, Associate Planner

City of Huntington Planning Commission **December 2, 2024**

Staff Report: A proposal to develop a public utility installation to include a replacement water tower and access road on a property that is approximately 0.23 acres.

PC 24-07

Issue: A proposal to develop a public utility installation to include a replacement water tower and access road on a property that is approximately 0.23 acres. The property is located at 111 Kings Hwy. and zoned R-1 Single Family Residential District. The site plan must be reviewed according to the development requirements due to the hillside site being an average of more than fifteen (15) percent grade. In addition, a request for waiver from the requirements of 1391.05 to create a slope exceeding a vertical rise of one foot for each two and one-half feet of horizontal distance will be considered.

Property Location: 111 Kings Hwy.
Petitioner/Property Owner: West Virginia American Water, 1600 Pennsylvania Ave., Charleston, WV.

Introduction and Issues

This is the site review public hearing for West Virginia American Water's plans for a public utility installation on a hillside site that has an average slope of more than fifteen (15) percent grade. They are also petitioning for a waiver from the development requirements of 1391.05 to create a slope exceeding a vertical rise of one foot for each two and one-half feet of horizontal distance.

The purpose of this site plan review is
1. To determine conformity with city code provisions on development. If all code provisions are met, the site plan must be approved.
2. To determine the average slope. The average slope for any hillside development shall be determined by the Planning Commission during the time of preliminary development design. Determination will be on an area-by-area basis with each lot sized according to the average topographic change falling within each area.
3. Consider requested waivers from the ordinance provisions.

Existing Conditions

The property is owned by West Virginia American Water. Currently, it is a vacant lot, approximately 0.23 acres, in the R-1 residential neighborhood of Kings Highway. There is a 70 foot tall water storage tower on a neighboring property West Virginia American Water seeks to replace.

Proposed Conditions

The petitioner is proposing to place a 74 foot tall by 28 foot wide replacement water tower on the property surrounded by a 6 foot fence topped with barbed wire with an access road consisting of an approximately twenty (20) percent grade. The 127 foot access road would be constructed as a "V" notched cut running generally perpendicular to the existing slope to create a 12 foot wide roadway. WVAW seeks to create a slope with a vertical rise of one foot for each one and one-half feet of horizontal distance.

Development Ordinance

Review of a site plan review includes:

1. Drainage plan*;
2. Boundary lines;
3. Contours. Contours shall be at intervals of two feet. Where the grade of slope exceeds 15 percent, the planning commission may accept contour intervals of five feet.
4. Location of utility infrastructure and installations;
5. Traffic impact;
6. Setbacks from lot lines;
7. Zoning. Whether uses conform;
8. Subsurface conditions.* The location and results of tests made to ascertain subsurface soil, rock, and ground water conditions, on the site are to be submitted. A slope stability analysis may be required when steep slopes are created either by cuts or fills.
9. Storm water management/soil erosion control plan*;

*Some requirements may be met by producing approvals from other agencies, such as the West Virginia Division of Environmental Protection and the Stormwater Utility.

Hillside regulations require for any slope disturbance:

"no land shall be graded, cut, or filled so as to create a slope exceeding a vertical rise of one foot for each two and one-half feet of horizontal distance between abutting lots, unless a retaining wall of sufficient height and thickness is provided to retain the graded bank. Major cuts, excavation, grading, and filling, where the same materially changes the site and its relationship with surrounding areas or materially affects such areas, shall not be permitted if such excavation, grading, and filling will result in a slope exceeding a vertical rise of one foot for each two and one-half feet of horizontal distance between abutting lots or between adjoining tracts of land, except where adequate provision is made to prevent slides and erosion by cribbing and retaining walls." COH §*1391.05*

Minimum Hillside Requirements

For developments with a 15-25% slope:

Front yard	25 feet
Each side yard	10% of lot width

Suitability of Land

"If the Planning Commission finds that the land proposed to be developed is unsuitable for development due to…bad drainage, topography,…and other such conditions which may endanger health, life or property; and, if from investigations conducted by the public agencies concerned, it is determined that in the best interest of the public the land should not be developed for the purpose proposed, the Commission shall not approve the land for development unless adequate methods are advanced by the developer for solving the problems that will be created by the development of the land." COH *§1387.03*.

The West Virginia Supreme Court on Public Utilities:

Public utilities are subject to land use regulation;[1] however, public utilities have a favored status and land use regulations should be applied with great restraint and a balanced approach. [2] Local governments may, in the public interest, provide reasonable parameters for land use; but local governments cannot effectively prohibit a utility from conducting its necessary activities, and thereby 'dump' the construction of utility facilities on other jurisdictions.[3]

Comprehensive Plan

Plan2025 designates this area as the Hills Residential District, which is characterized by:

- Medium density development
- Small and medium sized lots
- Mix of grid and curvilinear streets defined by the terrain
- Sidewalks interspersed
- Housing intermixed with dense woodlands
- Primarily single family

Pictures

View of flat terrain on top of the slope that will be developed for the water tower.

View of property from Kings Hwy. looking in a southeastern direction.

Department/Agency Comments

Public Works: Has met on site with WVAW and has no objections.

Cabell Huntington Health Department: No comment.

Huntington Sanitary Board: There are no concerns with sewer related items. The Sanitary Board has been working with WVAW on storm line location for the runoff

[1] *Potomac Edison Co. v. Jefferson Cnty. Plan. & Zoning Comm'n*, Syl. Pt. 1204 W. Va. 319, 320, 512 S.E.2d 576, 577 (1998).

[2] *Id*. 204 W. Va. at 326, 512 S.E.2d at 583.

[3] Id.

that will not affect any surrounding properties.

Huntington Stormwater Utility: Does not object to this project. WVAW submitted a sediment and erosion control plan that was found satisfactory.

Appalachian Power: No issues with the proposed site. Wants WVAW to contact them before any construction equipment arrives on site.

Huntington Fire Department: No issues with the proposed installation, although they did comment that the road is of a steeper grade than fire apparatus like.

Mountaineer Gas: Is not likely to be impacted by the proposed project, with the exception of the gas main along the edge of the street and will work with WVAW if relocations are needed.

Staff Comments

The existing water storage tank on a neighboring property was built in 1953 and has serviced the Roland Park area for decades. Per WVAW, the longer the existing tower remains in service increases the potential for decreased service and water quality. To maintain service to the Roland Park area WVAW recommends placing a new water storage tank in close proximity to the existing one. The existing tower is 70 feet tall but the proposed tank location is a bit lower in elevation, therefore the heights may be perceptively very close to the same.

The original geotechnical exploration of the site for WVAW by American Geotech, Inc. proposes excavation of the tank site, with the base of the tank being placed ±3 feet below the existing surface elevation. Additionally, it is recommended that a "wedding cake" type of foundation consisting of a reinforced concrete ring-wall foundation tied to a thick, heavily reinforced concrete slab under the tank be used.

This type of footing design along with drainage maintenance on either side of the ring-wall foundation during and after construction should allow for suitability of the site for development.

In addition to the site plan review, WVAW has requested a waiver of the requirements of the hillside regulations in regards to the access road. Per the slope stability analysis done for WVAW by American Geotech, Inc. in May 2024, the access road is designed at a one foot vertical rise for each one and a half feet of horizontal distance creating an approximate twenty (20) percent grade (requirement is to not exceed a fifteen (15) percent grade).

The revised slope stability report for the access road by American Geotech, Inc. recommends that all cut slopes be constructed by peeling away with an excavator and that diversion berms and ditches should be installed as necessary to avoid exterior cut slope saturation and erosion. Additionally, it is recommended that soft, loose unsuitable soils be removed before final grading occurs.

Current plans specifically instruct the contractor to construct this project, specifically the slopes, in compliance with the recommendations of the geotechnical engineer.

Terradon Corporation, in their capacity as City Engineer, have reviewed the current plans submitted by WVAW and have minor questions that will be resolved before permitting occurs on this project.

Staff Recommendation

Staff recommends that this project be approved with the condition that the removal of the old tank take place within 18 months of the new tank being placed in service.

Attachments

- Application
- Aerial Map
- Zoning Map
- Future Land Use Map
- Project Plan
- Geotechnical reports

Major Subdivision Application

Huntington Planning Commission

800 5th Avenue
Huntington, WV 25717-1659

This application should be used for a division of a tract/parcel of land that involves the following:

- Commercial, industrial, governmental, religious, non-profit or public, and multi-family residential developments of one (1) acre or more.
- Single-family residential developments of 4 or more lots. Single-family residential developments of 1-3 lots that fall under Article 1389 Hillside Regulations.
- Any development requiring any streets or extension of the local governmental facilities, or the creation of any public improvement.

Please complete and return this application along with a Plat/Survey of the subdivision, a Metes & Bounds Description prepared by a Certified Surveyor, two (2) copies of the Preliminary Plans and a $100 processing fee to the Planning and Zoning Office located in Room 2 of City Hall.

The Planning Commission, Public Works Director, and Cabell County Health Department will review the application. If you have any questions, please contact the Planning Department at 304-696-5540 opt. 3 or by email at

PART ONE: PROPERTY INFORMATION

Street Address of Subject Property (s): 111 Kings Highway

District: 06 Tax Map: 85 Parcel(s): 55

Zoning Classification: R-1 Residential

PART TWO: APPLICANT/OWNER INFORMATION

Name: West Virginia American Water

Street Address: 1600 Pennsylvania Avenue

City: Charleston State: WV Zip Code: 25302

Telephone: 304-380-8692 Email: Paige.Thewes@amwater.com

All plats/surveys are to be completed by a Registered Surveyor and shall meet the West Virginia Board of Professional Surveyors Minimum Standards for Boundary Surveys, which include, but are not limited to:

- Map Number and Parcels
- Lot Numbers
- Lot Dimensions
- Parent Tract Identification
- Name of Subdivision
- District or Municipality, County, and State
- Check of Error of Closure and Area
- Monumentation
- Scale, North Arrow, Basis of Bearings
- Adjoining Owners — Deed Reference
- Adjoining Subdivision(s) — Plat Reference
- Name and Width of Adjoining Right-of-Ways
- Owner Name
- Name and Stamp/Seal of Registered Surveyor
- Date of Survey

By signing below, the applicant agrees that they have read and completed the Major Subdivision Application, and to the best of their knowledge the information reflected here and in the Survey and Metes & Bounds Description is correct.

J. W. Davis (attorney for WVAWC) 9/20/24

Applicant's Signature Date

111 Kings Highway
Cabell County Tax District 6, Map 85,
Parcel 55
PC 24-07
A proposal to develop a public utility installation to include a replacement water tower and access road on a property that is approximately 0.23 acres

111 Kings Highway
Cabell County Tax District 6, Map 85,
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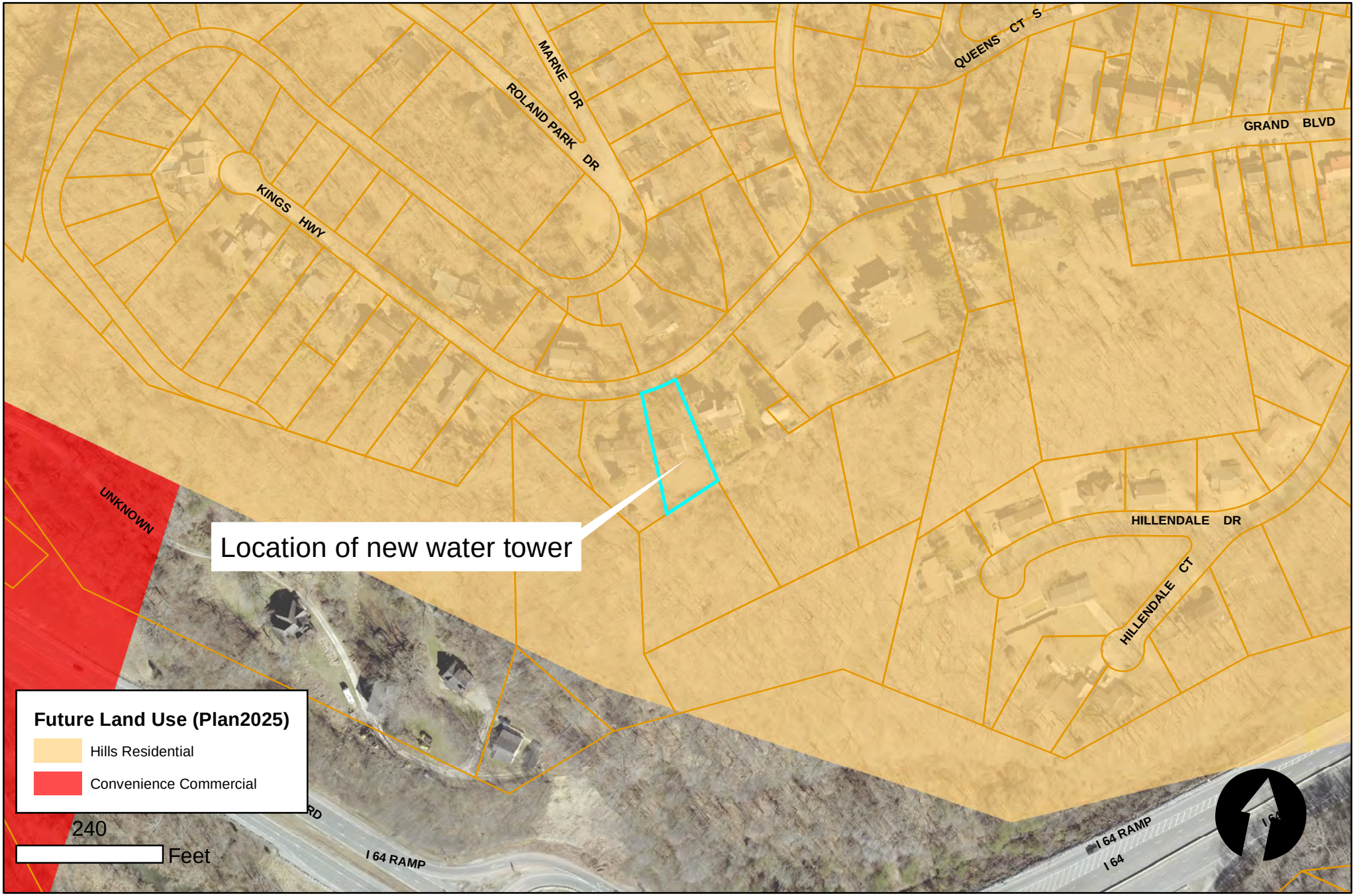


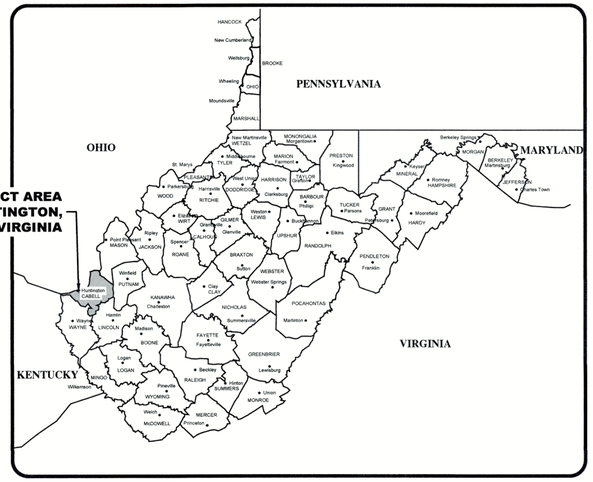
111 Kings Highway
Cabell County Tax District 6, Map 85,
Parcel 55
PC 24-07
A proposal to develop a public utility installation to include a replacement water tower and access road on a property that is approximately 0.23 acres

WEST VIRGINIA AMERICAN WATER

ROLAND PARK WATER STORAGE TANK IMPROVEMENTS

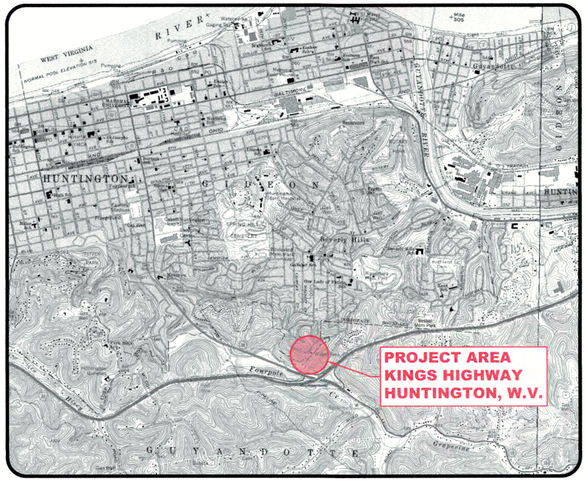
HUNTINGTON, CABELL COUNTY, WEST VIRGINIA

OCTOBER 2024



VICINTY MAP

INDEX TO DRAWINGS	
SHEET	TITLE
1	PROJECT LAYOUT, LEGEND, & NOTES
2	EXISTING CONDITIONS
2A	EXISTING CONDITIONS
3	GEOMETRIC LAYOUT
4	EROSION & SEDIMENT CONTROL PLAN
5	SITE PLAN
5A	SITE PLAN
6	GRADING PLAN
7	CROSS-SECTION LAYOUT PLAN
8	CROSS-SECTIONS
9	ACCESS ROAD & STORM PROFILES
9A	STORM PROFILES
10	SITE PROFILES A-A & B-B
11	TANK & FOUNDATION DETAILS
12	TANK & VAULT PIPING DETAILS
13	EROSION & SEDIMENT CONTROL NOTES & DETAILS
14	EROSION & SEDIMENT CONTROL DETAILS
15	MISCELLANEOUS DETAILS
16	MISCELLANEOUS DETAILS



LOCATION MAP

PREPARED BY:

GHOSH ENGINEERS

o: 304.343.5300 | **f:** 304.343.5912

4710 CHIMNEY DRIVE, SUITE A ▫ CHARLESTON, WV 25302

WEST VIRGINIA 811

CALL BEFORE YOU DIG!

Dial 811 or 800.245.4848

www.WV811.com

WEST VIRGINIA AMERICAN WATER

- [x] ISSUED FOR PERMITS — DATE: 10/10/24 BY: KTC
- [ ] APPROVED FOR BID — DATE: _____ BY: _____
- [ ] APPROVED FOR CONSTRUCTION — DATE: _____ BY: _____

KENNON T. CHAMBERS, P.E. 15614 — DATE 10/10/24

KENNON T. CHAMBERS 15614 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 10/10/24

P:\WVAW\WVAWC - Roland Park\CAD\WVAW_ROLAND_PARK - COVER.dwg, COVER, 10/18/2024 6:10:45 AM, AutoCAD PDF (High Quality Print).pc3, ANSI full bleed D (34.00 x 22.00 Inches), Allen

GENERAL NOTES:

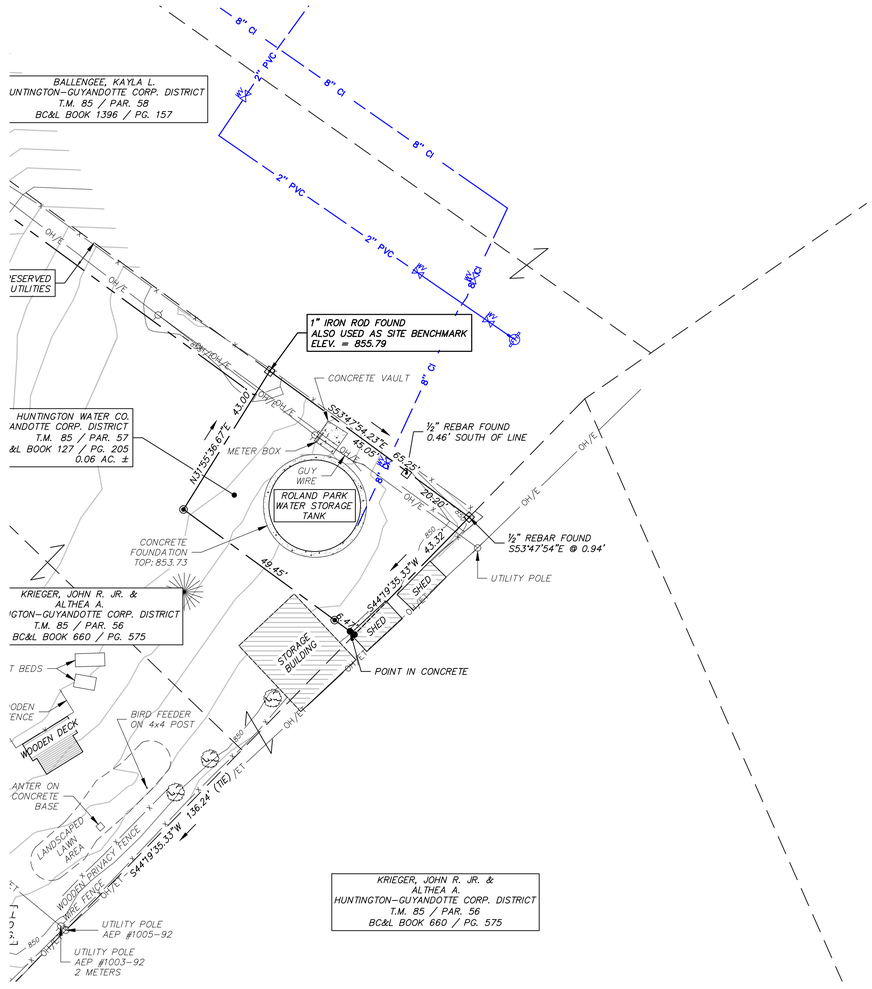
1. THRUST BLOCKING SHALL BE PROVIDED AT ALL TEES, HORIZONTAL BENDS, VERTICAL BENDS, AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.
2. ALL WORK WITHIN ROAD RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN OR VERIFY ALL NECESSARY PERMITS AND SHALL COMPLY WITH ALL REGULATIONS, RESTRICTIONS, AND SPECIFICATIONS RELATING THERETO AT NO ADDITIONAL COST TO THE OWNER OR ENGINEER.
3. THE CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF ALL ROAD CROSSINGS, VALVES, HYDRANTS, AND OTHER WATERLINE APPURTENANCES WITHIN ROAD RIGHT OF WAY WITH THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION UTILITIES REPRESENTATIVE.
4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE WEST VIRGINIA AMERICAN WATER SPECIFICATIONS.
5. PROPERTY LINE AND RIGHT OF WAY INFORMATION SHOWN HEREON IS FOR INFORMATION ONLY AND IS INTENDED ONLY TO INDICATE THE POSSIBLE EXISTENCE THEREOF. IT IS BASED ON TAX MAPS AND RECORDS. THE PROPERTY AND RIGHT OF WAY LINES AND INFORMATION SHOWN MAY NOT BE ACCURATE OR COMPLETE AND SHOULD NOT BE RELIED

NO.	DATE	DESCRIPTION
		REVISIONS

BRANDON T. CHILTON
REGISTERED
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
10/16/24

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A ▫ CHARLESTON, WV 25302

LAYOUT, LEGEND, & NOTES

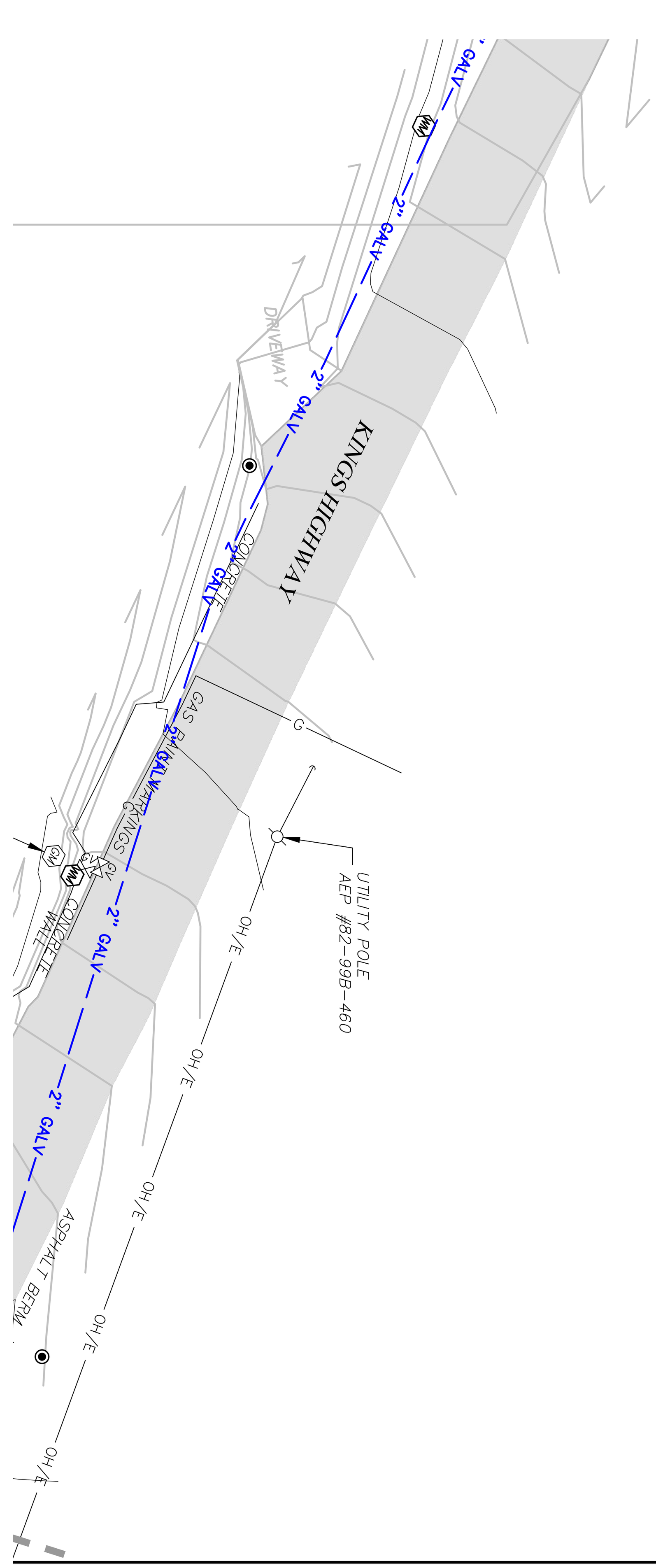


NO.	DATE	REVISIONS
1	10/10/24	REVISED PER CITY'S COMMENTS

SHANNON T. CHAMBERS, P.E.
REGISTERED
10/10/24
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

NG CONDITIONS



– SEE DRAWING NO. 2

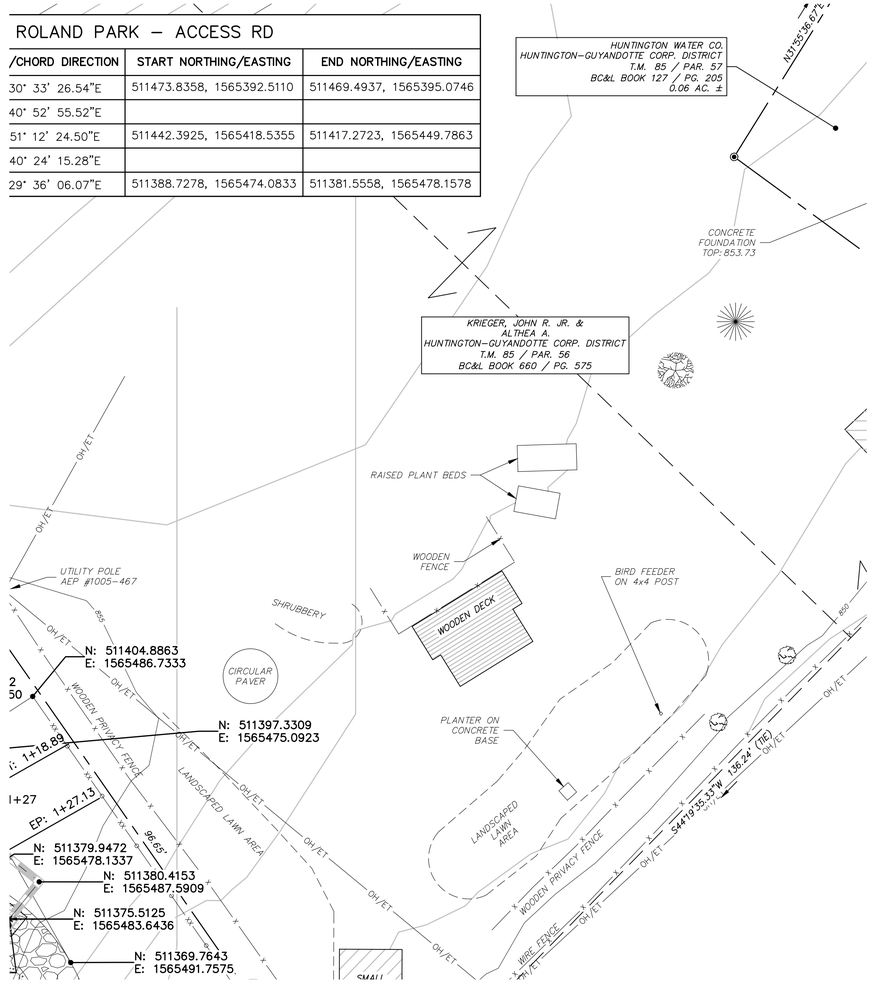
NG CONDITIONS

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS

REVISIONS

ROLAND PARK – ACCESS RD		
/CHORD DIRECTION	START NORTHING/EASTING	END NORTHING/EASTING
30° 33' 26.54"E	511473.8358, 1565392.5110	511469.4937, 1565395.0746
40° 52' 55.52"E		
51° 12' 24.50"E	511442.3925, 1565418.5355	511417.2723, 1565449.7863
40° 24' 15.28"E		
29° 36' 06.07"E	511388.7278, 1565474.0833	511381.5558, 1565478.1578

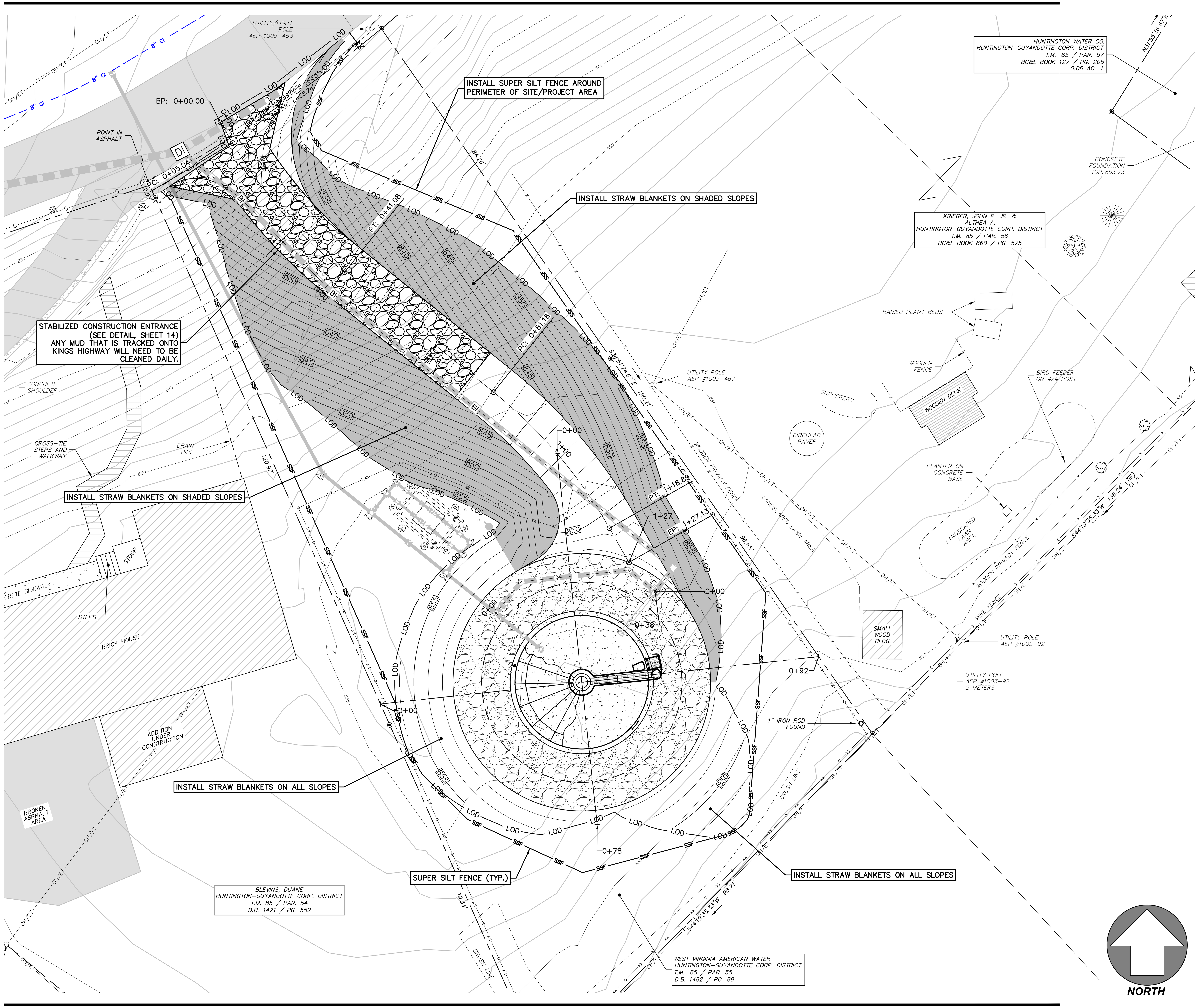


NO.	DATE	REVISIONS
1	10/10/24	REVISED PER CITY'S COMMENTS
2	10/31/24	REVISED SITE FENCE

JASON T. CHAMBERS
REGISTERED
10/31/24
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

ETRIC LAYOUT



UTILITY/LIGHT POLE AEP 1005-463
INSTALL SUPER SILT FENCE AROUND PERIMETER OF SITE/PROJECT AREA
BP: 0+00.00
POINT IN ASPHALT
PC: 0+05.04
INSTALL STRAW BLANKETS ON SHADED SLOPES
PT: 0+41.08
STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL, SHEET 14) ANY MUD THAT IS TRACKED ONTO KINGS HIGHWAY WILL NEED TO BE CLEANED DAILY.
PC: 0+81.18
CONCRETE SHOULDER
CROSS-TIE STEPS AND WALKWAY
DRAIN PIPE
INSTALL STRAW BLANKETS ON SHADED SLOPES
PT: 1+18.89
EP: 1+27.13
STOOP
STEPS
BRICK HOUSE
CONCRETE SIDEWALK
ADDITION UNDER CONSTRUCTION
BROKEN ASPHALT AREA
INSTALL STRAW BLANKETS ON ALL SLOPES
SUPER SILT FENCE (TYP.)
BLEVINS, DUANE HUNTINGTON-GUYANDOTTE CORP. DISTRICT T.M. 85 / PAR. 54 D.B. 1421 / PG. 552
WEST VIRGINIA AMERICAN WATER HUNTINGTON-GUYANDOTTE CORP. DISTRICT T.M. 85 / PAR. 55 D.B. 1482 / PG. 89
INSTALL STRAW BLANKETS ON ALL SLOPES
1" IRON ROD FOUND
HUNTINGTON WATER CO. HUNTINGTON-GUYANDOTTE CORP. DISTRICT T.M. 85 / PAR. 57 BC&L BOOK 127 / PG. 205 0.06 AC. ±
CONCRETE FOUNDATION TOP: 853.73
KRIEGER, JOHN R. JR. & ALTHEA A. HUNTINGTON-GUYANDOTTE CORP. DISTRICT T.M. 85 / PAR. 56 BC&L BOOK 660 / PG. 575
RAISED PLANT BEDS
WOODEN FENCE
WOODEN DECK
SHRUBBERY
BIRD FEEDER ON 4x4 POST
UTILITY POLE AEP #1005-467
CIRCULAR PAVER
PLANTER ON CONCRETE BASE
LANDSCAPED LAWN AREA
SMALL WOOD BLDG.
UTILITY POLE AEP #1005-92
UTILITY POLE AEP #1003-92 2 METERS
NORTH

NO.	DATE	DESCRIPTION
1	10/31/24	REVISED SITE FENCE

REVISIONS

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

EROSION & SEDIMENT CONTROL PLAN

WEST VIRGINIA AMERICAN WATER
ROLAND PARK WATER STORAGE TANK IMPROVEMENTS
CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA

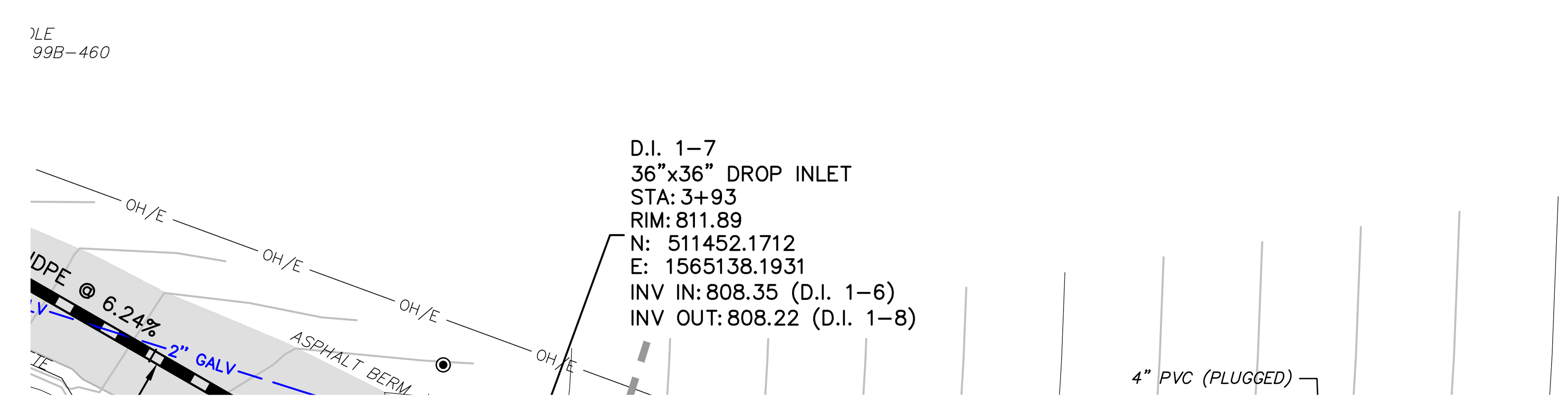
DRAWN BY: JAK CHECKED BY: KTC PROJ. NO.
SCALE: 1" = 10' DATE: 10/10/2024

DRAWING
4

NO.	DATE	REVISIONS
1	10/10/24	REVISED PER CITY'S COMMENTS
2	10/31/24	REVISED SITE FENCE

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

SITE PLAN



SITE PLAN

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS

REVISIONS

NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS
2	10/31/24	REVISED SITE FENCE

REVISIONS

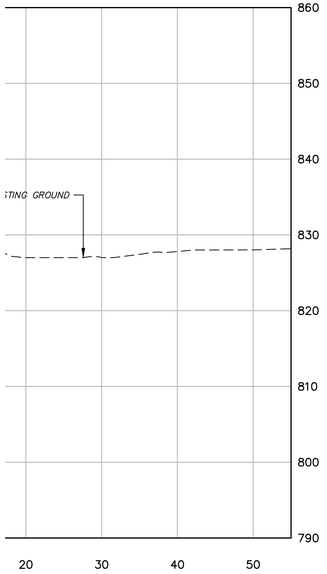
GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

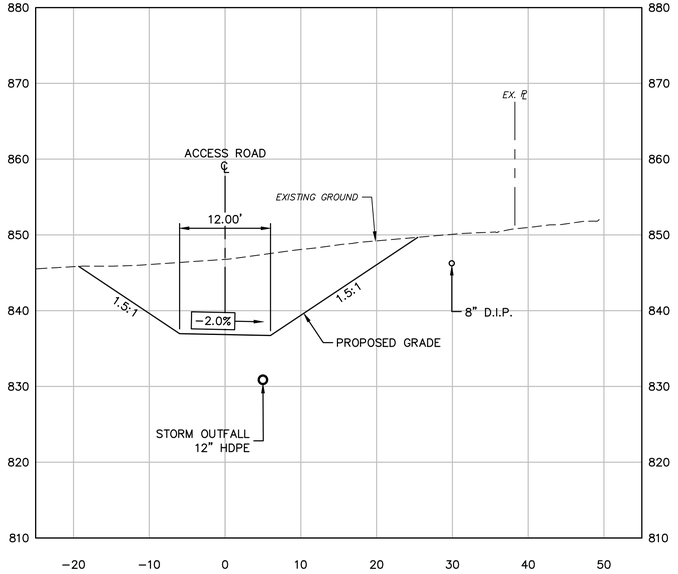
ADING PLAN

NO.	DATE	REVISIONS
1	10/31/24	REVISED SITE FENCE

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

SECTION LAYOUT





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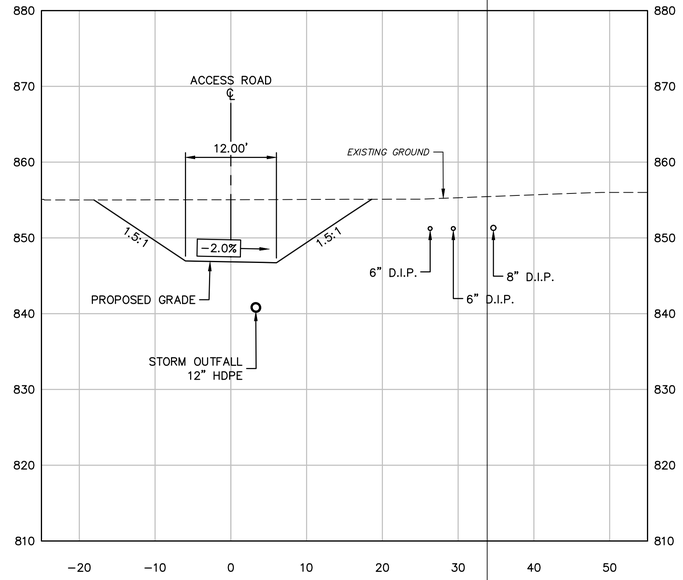

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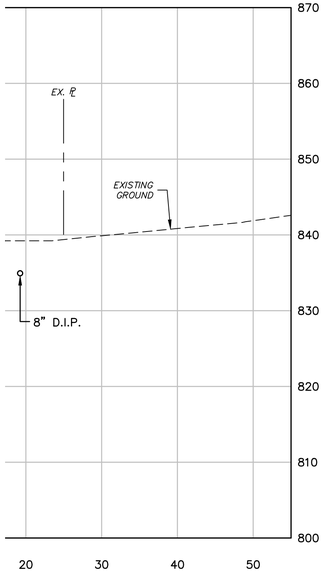

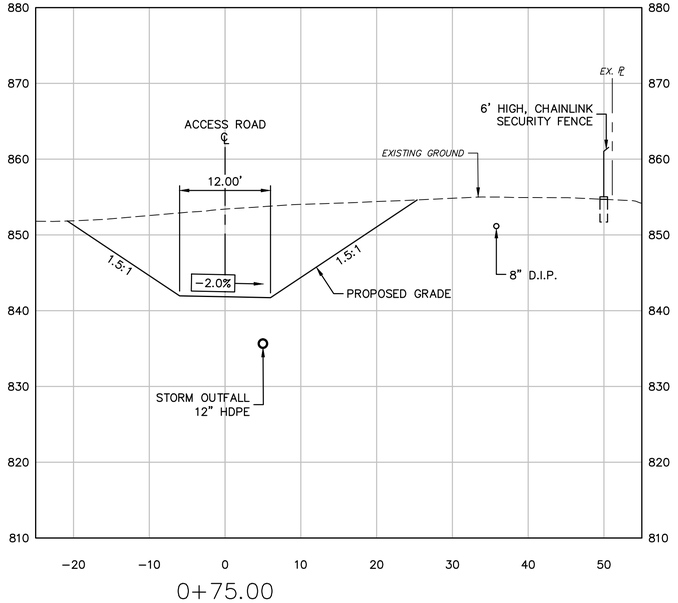

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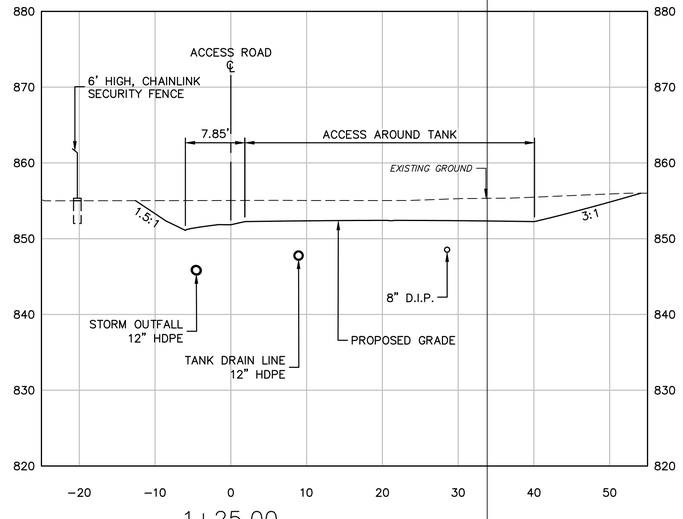

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NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS
2	10/31/24	REVISED SITE FENCE

REVISIONS

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5912
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

CROSS-SECTIONS

WEST VIRGINIA AMERICAN WATER
ROLAND PARK WATER STORAGE TANK
IMPROVEMENTS
CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA

DRAWN BY: JAK CHECKED BY: KTC PROJ. NO.
SCALE: 1" = 10' DATE: 10/10/2024

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NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS

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D & STORM PROFILES

NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS

REVISIONS

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REGISTERED
10/10/24
STATE OF
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PROFESSIONAL ENGINEER

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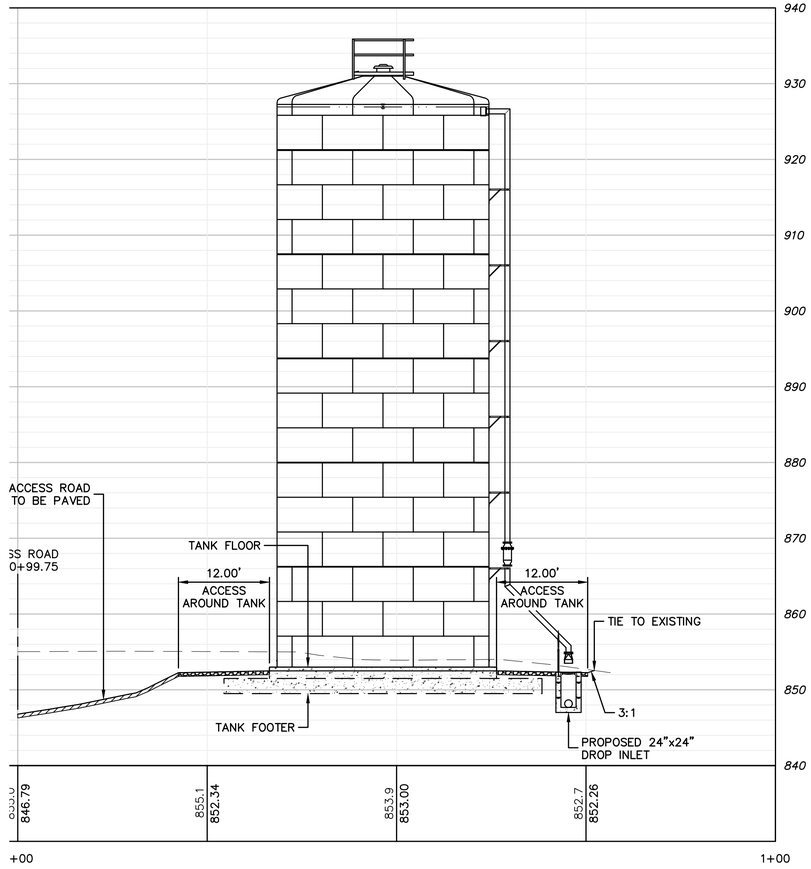
RM PROFILES



ROLAND PARK - SITE B-B PROFILE

NO.	DATE	DESCRIPTION
		REVISIONS

SHANNON T. CHAMBERS
REGISTERED
10/16/24
STATE OF
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PROFESSIONAL ENGINEER

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PROFILES AA & BB

NOTE:
1. THIS ELEVATION IS NOT A TRUE SECTION.

NO.	DATE	DESCRIPTION
1	10/10/24	REVISED PER CITY'S COMMENTS

REVISIONS

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REGISTERED
10/10/24
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

GHOSH ENGINEERS
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UNDATION DETAILS

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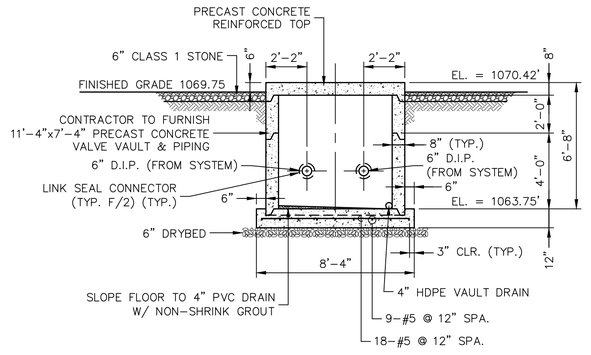
NOTES:

1. THE CHECK VALVE SHALL BE A SERIES #500 SWING-FLEX AS MANUFACTURED BY VAL-MATIC VALVE AND MANUFACTURING CORP. OF ELMHURST, IL. THE VALVE SHALL BE EQUIPPED WITH A BACKFLOW ACTUATOR, MECHANICAL DISK POSITION INDICATOR, AND PRE-WIRED LIMIT SWITCH TO INDICATE OPEN OR CLOSED FROM A REMOTE LOCATION. MINIMUM PIPE CLEARANCE SHALL BE MAINTAINED BELOW THE VALVE TO ENSURE THE OPERATION OF THE BACKFLOW ACTUATOR.
2. 4" PVC VAULT DRAIN LINE SHALL BE SCHEDULE 80 WITH SOLVENT WELD JOINTS AND FITTINGS.
3. THE ALTITUDE VALVE SHALL BE SUPPLIED BY THE OWNER.
4. THE ACCESS HATCH SHALL BE A TYPE JD-4AL AS MANUFACTURED BY THE BILCO COMPANY OF NEW HAVEN, CT. WITH A LADDER UP® SAFETY POST, TYPE LU-1.
5. THE SINGLE SECTION FIXED LADDER SHALL BE AS MANUFACTURED BY GREEN BULL SPECIALTY PRODUCTS OF LOUISVILLE, KY.
6. THE PRECAST CONCRETE VALVE VAULT SHALL BE MANUFACTURED IN ACCORDANCE TO THE LATEST REVISION OF ASTM C-476 AND THE BASE SECTION SHALL HAVE AN EXTENDED BASE AS SHOWN IN SECTION A-A AND B-B.
7. ALL INTERIOR PIPING AND VALVES SHALL BE SHOP PRIMED AND THEN COATED WITH TWO COATS OF 3 - 6 DFT EACH OF MACROPOXY 646 PW AS MANUFACTURED BY THE SHERMAN WILLIAMS COMPANY. THE COLOR SHALL BE LIGHT BLUE.
8. ALL THRUST BLOCKS ARE TO BE SIZED BY WVAW ENGINEER AT TIME OF INSTALLATION.
9. POWER & TELEMETRY TO BE FURNISHED AND INSTALLED BY WVAW.
10. ALL YARD PIPING, FITTINGS, & VALVES TO BE FURNISHED BY WVAW.
11. ALL 8" MJ GATE VALVES WITHIN THE VAULT SHALL HAVE A HAND WHEEL.
12. LINK SEAL CONNECTOR SHALL BE A MODEL S-316, OR APPROVED EQUAL.



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VAULT PIPING DETAILS

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STREAM CROSSING NOTES:

THE CONTRACTOR WILL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO INSTALL THE STREAM CROSSINGS AS SHOWN ON THE PLANS AND DESCRIBED HEREIN. THE CONTRACTOR MUST INSTALL THE STREAM CROSSINGS IN SUCH A MANNER AS TO MINIMIZE DISTURBANCE, TO NOT SIGNIFICANTLY IMPACT DOWNSTREAM WATER QUALITY, AND TO PROTECT THE WATER LINES FROM EROSION. THE CONTRACTOR WILL RESTORE THE EXISTING STREAM BANKS AND BOTTOM, AS MUCH AS PRACTICABLE, TO THEIR ORIGINAL CONDITION.

THE STREAM BANKS WILL BE RESTORED BY BACKFILLING THE MAIN TRENCH WITH MECHANICALLY COMPACTED BACKFILL OF EARTH, OR WITH RIPRAP, AS APPROVED BY THE ENGINEER TO THE ORIGINAL GROUND SURFACE. THE LIMITS OF COMPACTION SHALL EXTEND FROM THE TOP OF BANK TO TOP OF BANK ON EACH SIDE OF THE CROSSING AS DETERMINED BY THE ENGINEER AND AS SHOWN IN THE CONTRACT DOCUMENTS. IMMEDIATELY FOLLOWING THE COMPLETION OF A STREAM CROSSING, SUITABLE BMP'S SHALL BE INSTALLED ALONG THE STREAM BANK ON EACH SIDE WITHIN TOW (2) FEET OF THE EDGE OF WATER AND OF SUFFICIENT LENGTH TO EXTEND BEYOND THE LIMITS OF THE EXCAVATED TRENCH WIDTH. THE BMP'S SHALL REMAIN IN PLACE UNTIL AFTER FINAL STABILIZATION OF THE ENTIRE DISTURBED AREA HAS OCCURRED.

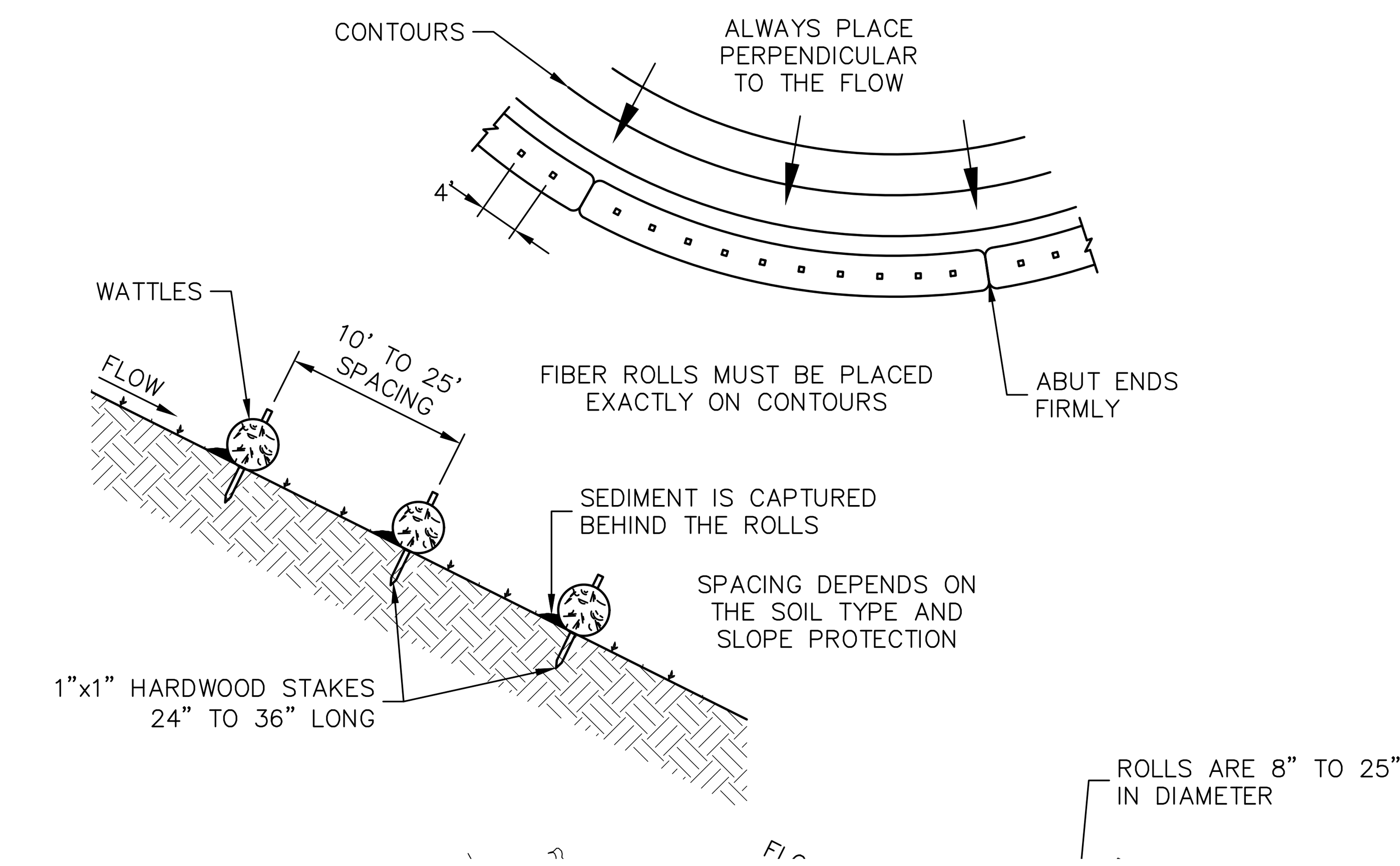
THE STREAM BOTTOM TRENCH WILL BE BACKFILLED WITH MECHANICALLY COMPACTED EARTH OR RIPRAP, AS APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL USE EITHER OF THE FOLLOWING METHODS TO INSTALL THE STREAM CROSSINGS.

A. METHOD 1. THE CONTRACTOR SHALL CONSTRUCT AN EARTH EMBANKMENT FROM THE STREAM BANK TO A POINT BEYOND THE CENTERLINE OF THE STREAM. THE SLOPES OF THE EARTH EMBANKMENT SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH 6 MIL POLYETHYLENE SHEETING. THE SHEETING SHALL EXTEND FROM THE STREAM BOTTOM TO AN ELEVATION TWO (2) FEET ABOVE THE WATER LEVEL. THE MAIN SHALL THEN BE INSTALLED IN A TRENCH EXCAVATED THROUGH THE EMBANKMENT. THE EMBANKMENT MATERIAL AND ANY EXCESS TRENCH EXCAVATION SHALL BE REMOVED TO AN OFF-SITE DISPOSAL SITE SHALL HAVE ALL THE NECESSARY BMP'S IN PLACE FOR THE MATERIAL REMOVED. THE SAME PROCEDURE SHALL BE USED TO INSTALL THE REMAINDER OF THE STREAM CROSSING.

B. METHOD 2. THE CONTRACTOR SHALL CONSTRUCT A COFFERDAM OF SAND BAGS OR INFLATABLE BAGS FROM THE STREAM BANK TO A POINT BEYOND THE CENTERLINE OF THE STREAM. THE MAIN SHALL THEN BE INSTALLED IN A TRENCH BETWEEN THE COFFERDAM. ANY EXCESS TRENCH EXCAVATION SHALL BE REMOVED TO AN OFF-SITE DISPOSAL AREA. THE OFF-SITE DISPOSAL SITE SHALL HAVE ALL THE NECESSARY BMP'S IN PLACE FOR THE MATERIAL REMOVED. THE COFFERDAM SHALL THEN BE REMOVED WHEN THE PIPE IS INSTALLED TO A POINT BEYOND THE CENTERLINE OF THE STREAM. THE SAME PROCEDURE SHALL BE USED TO INSTALL THE REMAINDER OF THE STREAM CROSSING.

AT THE SOLE DISCRETION OF THE ENGINEER, ALTERNATE METHODS IN LIEU OF THOSE DESCRIBED IN THE ABOVE OPTIONS MAY BE PERMITTED. THE CONTRACTOR SHALL ADEQUATELY DESCRIBE ANY PROPOSED ALTERNATE METHOD AND SUBMIT THE SAME TO THE ENGINEER AS WELL AS ALL FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION OF THE STREAM FOR THEIR REVIEW AND APPROVAL.



ROLLS ARE 8" TO 25" IN DIAMETER

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4710 CHIMNEY DRIVE, SUITE A □ CHARLESTON, WV 25302

SEDIMENT CONTROL
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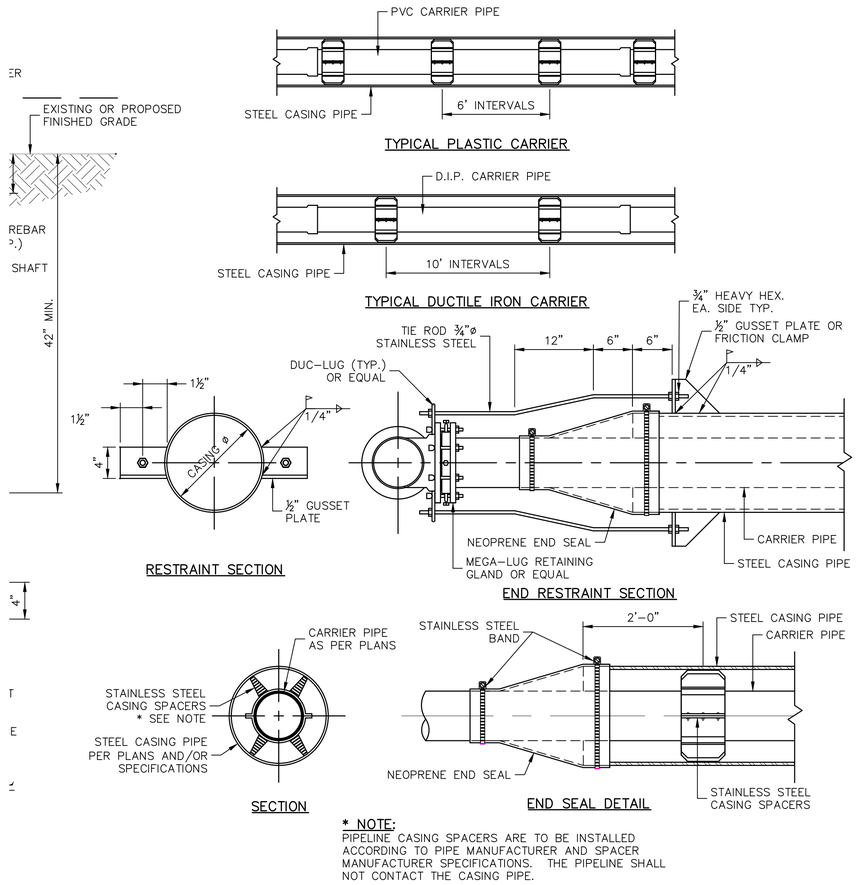
MENT CONTROL DETAILS



*** NOTE:**
PIPELINE CASING SPACERS ARE TO BE INSTALLED ACCORDING TO PIPE MANUFACTURER AND SPACER MANUFACTURER SPECIFICATIONS. THE PIPELINE SHALL NOT CONTACT THE CASING PIPE.

CASING INSTALLATION DETAILS

NOT TO SCALE

NO.	DATE	DESCRIPTION
		REVISIONS

SHANNON T. CHAMBERS
REGISTERED
16824
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

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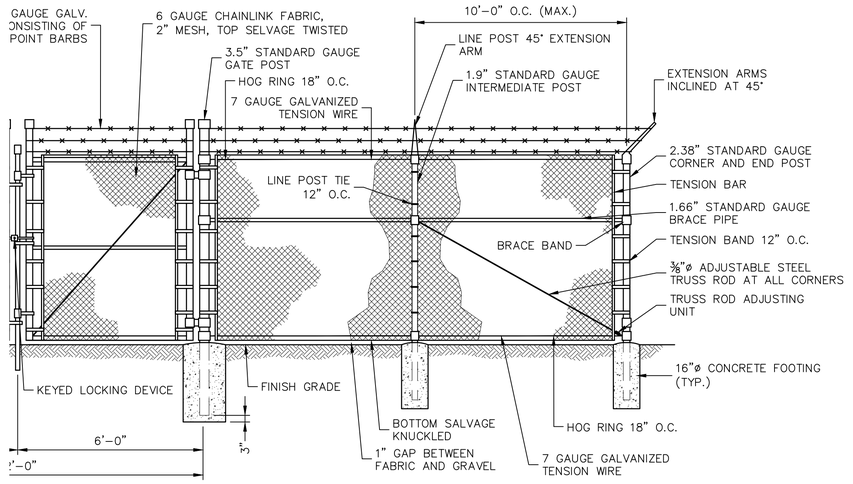
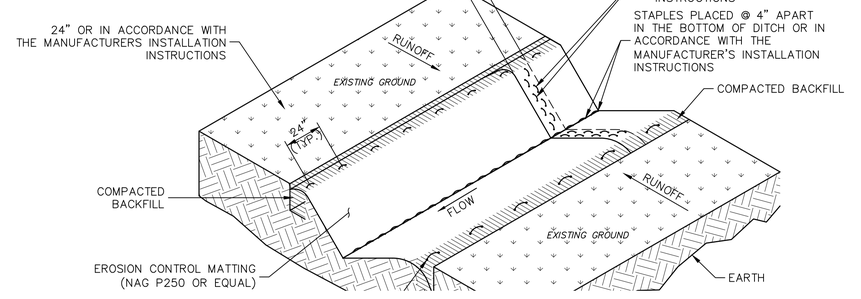
ANEOUS DETAILS



6' CHAINLINK SECURITY FENCE & GATE DETAIL

NOT TO SCALE



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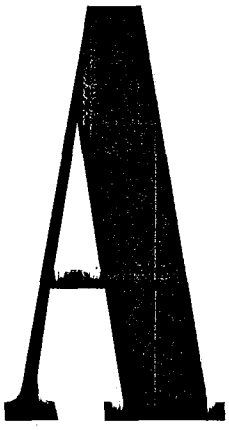
ANEOUS DETAILS



American Geotech, Inc.
601 Ohio Avenue
Charleston, WV 25302
(304) 340-4277
Fax 340-4278

AMERICAN GEOTECH, INC.

Geotechnical, Environmental and Testing Engineers

REPORT OF
GEOTECHNICAL EXPLORATION & ENGINEERING ANALYSIS
PROPOSED ROLAND PARK WATER TANK
111 KINGS HIGHWAY
HUNTINGTON, WEST VIRGINIA

Prepared For

GHOSH ENGINEERS, INC.
CHARLESTON, WEST VIRGINIA
DECEMBER - 2022

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

December 1, 2022

Mr. Kennon Chambers, P.E.
Ghosh Engineers, Inc.
4710 Chimney Drive
Charleston, West Virginia 25302

Re: Report of Geotechnical Exploration and Analysis
Proposed Roland Park Water Storage Tank Replacement
111 Kings Highway
Huntington, West Virginia

Dear Mr. Chambers:

This report presents the results of an engineering subsurface exploration and analysis for the proposed Roland Park Water Storage Tank replacement in Huntington, West Virginia. The purpose of this exploration was to generally define the subsurface conditions and to characterize these conditions for the proposed construction of the water storage tank.

The exploration included the drilling of two (2) soil test borings, visual observations of the site, and the report preparation. The exploration was authorized by Kennon Chambers of Ghosh Engineers, and was carried out in accordance with our verbal proposal/agreement.

PROJECT INFORMATION

The proposed construction includes a steel water storage tank to replace an existing tank owned by WV American Water Co. The proposed tank will have a shell height of 70 feet and a diameter of 24 feet (ft). The proposed tank would typically be supported on a "wedding cake" type foundation system, consisting of a reinforced concrete ring-wall bearing on the underlying weathered bedrock. The weight of the water will be supported on a thick, heavily reinforced concrete slab tied to the surrounding reinforced concrete ring-wall footing. The ring-wall will support the weight of the tank shell. The tank will consist of glass lined, bolted or welded steel panels.

TOPOGRAPHY AND GEOLOGY

The site is a narrow crowed ridge on the northern terminus of an elongated ridge. The hillsides below the ridge are naturally steeply sloping land. Surface elevations within the new tank pad range from a high of 857 feet to a low of 848 feet. Presently, the site is occupied by a single-story wood-frame house, which is centrally located on the lot, some brick and concrete patios, and gently sloping grassy land. We understand that there is a partial basement section below the northern end of the existing house. The surface is gently to moderately sloping within the proposed tank area with surface elevations descending to the east and west. There is the possibility of a septic system next to the back of the house, as reported by the neighbor.

Cabell County is located within the unglaciated portion of the Appalachian Plateau physiographic province. This section of the province is characterized by deeply incised "V" shaped valleys with somewhat rounded ridge tops. Soil cover is relatively thin throughout the vicinity with somewhat thicker residual soils found along the ridge tops, thin residual soils on the slopes, and thin alluvial and colluvial soils along the valley floors.

The Geological Map of West Virginia reveals that the area of the site is underlain by the Conemaugh Group. The Conemaugh Group consists of non-marine cyclic sequences of sandstone, siltstone, red and gray shale, limestone and coal. The bedrock units in this group are relatively horizontally bedded and uniform, with an overall dip to the northeast of 5%.

SUBSURFACE EXPLORATION

Two (2) Standard Penetration Test (SPT) soil borings were drilled on November 29, 2022 in the footprint of the proposed tank. The borings were drilled in general accordance with ASTM D-1586 procedures utilizing track-mounted drilling equipment at the approximate locations shown on the Test Boring Location Plan. The test boring locations were staked in the field by AGI personnel. The samples were recovered from the undisturbed material below the augers using a split spoon sampler. The split spoon sampler, having an outside diameter of 2-inches and an inside diameter of 1⅜-inches, was driven using a 140 pound automatic hammer falling 30 inches. The material samples were recovered at 2.5 foot intervals within the first 10 feet. The test borings were advanced between samples and the boreholes were maintained by using 2.25-inch interior diameter hollow-stem augers. All borings were extended to completion depths of 7.9 feet to 8.3 feet below the present surface grades.

Upon completion of the drilling, the holes were backfilled with auger cuttings and the samples were returned to our soil mechanics laboratory, where they were visually classified and grouped by the project engineer. The laboratory testing program included natural moisture contents and pocket penetrometer readings on the recovered material samples. The final test boring logs were then prepared and are attached to this report, along with the information describing the basis and limitations of the exploration.

SUBSURFACE CONDITIONS

An average 3 inches of topsoil was present at the surface at our test boring locations. Natural colluvial soils and residual materials were encountered at shallow depths in B-2 and B-3. The natural colluvium in B-3 was described as brown silty clay with trace roots. The soil materials were moist and medium stiff in consistency. Laboratory testing produced moisture contents ranging from 15.4% to 19.7%. The SPT N-values were on the order of 5 blows-per-foot (bpf) in the above soil stratum. Pocket penetrometer readings varied from 1.5 to 1.75 tons-per-square-foot (tsf). Both B-2 and B-3 encountered residual materials below the topsoil and natural soil at depths of approximately 0.3 to 2.0 feet below the existing ground surface.

The residual materials consisted of very soft gray and tan claystone to a depth of 7.0 feet. Residual materials resemble the original parent bedrock in texture and structure. In all borings, the overburden and residual material layers were underlain by alternating layers of tan shale and sandstone to the completion depths. These stratified shale formations were weathered or highly weathered. These materials are best classified as very soft to tough rock. The N-values within these materials ranged from 17 to practical refusal (50 blows for a penetration of 6 inches or less). All borings were extended to completion depths of 7.9 to 8.3 feet below the present ground surface.

Groundwater was not encountered at either test boring location. We should state, however, that fluctuations in the location of the groundwater table, as well as perched or trapped water, can occur as a result of seasonal variations in precipitation, overland runoff, infiltration, and other factors not immediately apparent at the time of our exploration.

CONCLUSIONS AND RECOMMENDATIONS

There could be a septic system/tank located next to the rear of the house and within the proposed footprint of the new water tank. Complete removal of a septic system or tank may be required during site preparation. We recommend that the ground surface in the new water tank footprint be cut approximately 3 feet to facilitate removal of any basement section, septic tank/system, footings, and utilities.

Foundation Design

The base of the tank (top of slab) should be set at or below 854 feet, which is ±3 feet below the existing surface elevation at the center of the tank. A few feet of cut is recommended to facilitate removal of any septic system, basement sections, footings, or utilities and achieve a final grade elevation with a smooth transition from the neighboring lot and new access road. All cut slopes constructed in soil and rock should be maintained at 2H:1V. Any fill slopes outside of the tank area should be maintained at 3H:1V.

It is proposed to construct a replacement water storage tank supported on a "wedding cake" type foundation, consisting of a reinforced concrete ring-wall foundation tied to a thick, heavily reinforced concrete slab under the tank. The proposed tank will be 24 feet in diameter and the height is 70+ feet. Minor cut will be required to achieve the desired grade elevation.

It is our opinion that the proposed ring-wall foundation and concrete slab should bear on firm weathered shale on all sides. At depths of 6.5 feet and below from the existing ground surface (considering the lowering of the site surface), the weathered claystone/shale materials are capable of safely supporting the proposed tank. Over-excavation or stepping down of the footing excavations may be required to follow the bedrock surface due to irregularities or within the old house basement or septic system areas. As it will take more time than normal to place the reinforcing steel for the wedding cake foundation, we recommend placement of a 4 inch thick lean concrete "mud mat" below the entire foundation to protect the materials at bearing elevation if construction proceeds in the wetter fall/spring or winter months. All over-excavations should be backfilled using lean concrete to within 42 inches of the final exterior grade. Because the tank will be founded on soft weathered bedrock, we recommend that the allowable bearing stress beneath the ring-wall footing not exceed 3,000 pounds-per-square-foot (PSF), based on the total live plus dead load forces. The allowable bearing stress may be increased by one-third for additional stresses due to wind and seismic load conditions. Any required over-excavations on the downhill side (to follow suitable bearing materials) can be backfilled using 1,000 PSI lean concrete to within 42 inches of the final exterior grade (frost depth). An allowance of 10 cubic-yards of lean concrete should be provided due to the potential for over-excavation around old basements or septic systems.

The footing design should incorporate a minimum factor of safety against overturning of 1.5 and a minimum factor of safety against sliding of 2.0. In addition, if the resultant force of the maximum vertical force during wind load and seismic analysis does not act within the middle third of the foundation (kern), a smaller effective bearing area will occur and thereby result in a higher effective soil pressure that must be accounted for in the design. The structural engineer must evaluate overturning of the tank structure under two conditions: 1) completely empty with maximum wind load and seismic at the same time, 2) completely full with maximum wind load and seismic at the same time.

For a foundation system designed, constructed, and verified by the geotechnical engineer as recommended above, the estimated maximum settlement will be 0.5 inch at the center of the tank and 0.25 inch at the outer ring. This maximum settlement will produce differential settlement on the order of 0.25 inch. It should be noted that 50% of the settlement will be elastic compression, which will occur shortly after the initial loading.

Drainage should be maintained on either side of the ring-wall foundation during and after construction. The footing excavations should be inspected by the geotechnical engineer, or his representative, to confirm that the field bearing conditions are consistent with the design assumptions. Large rock pieces and cobbles should be expected at bearing elevation during excavation of the ring-wall foundation. Any decomposed materials, utility backfill, large rock pieces and cobbles encountered at bearing elevation should be undercut and removed from the footing excavations. All over-excavated footings can be backfilled with lean concrete to final bearing elevation.

All structural areas, as defined by the tank foundation footprint, should be stripped of all structures, slabs, basement features, septic systems/tanks, vegetation, topsoil, trees, and any other deleterious materials. Following the stripping and grading operations, the exposed surface area

should be proof-rolled by a smooth drum vibratory roller under the direction of a qualified geotechnical representative. A minimum of four passes should be made by the proof-rolling equipment, with the second two passes made in a direction perpendicular to the first two passes. Localized soft or yielding areas should be removed and replaced with compacted engineered fill.

The on-site natural soils are primarily fine-grained with few rock fragments. The on-site soil materials should be used only on the access road as controlled engineered fill. It is recommended that only free-draining #8 limestone chips be used as fill material inside the ring-wall and below the slab. Any engineered fill or backfill should be compacted to 100% of the standard Proctor maximum dry density (ASTM D 698) within ±3% of the optimum moisture content. The fill should be placed in uniform level lifts not to exceed 4 inches and the above compaction should be verified by on-site density gauge testing by American Geotech.

The exact elevation of the bearing surface should be confirmed in the field after the footing excavation has been made. All footing excavations must be properly inspected by geotechnical personnel prior to reinforcement bar and concrete placement. The base of the ring-wall footing should be extended down to a depth of at least 42 inches below final exterior grade to allow for frost protection of the bearing materials.

Seismic Soils Classification and Seismic Hazard Evaluation

The 2015 International Building Code (IBC) seismic site classification is determined from the average soil conditions within the top 100 feet of the subsurface profile. The IBC permits the site seismic class to be estimated by a geotechnical engineer based upon known regional geologic conditions where site-specific data is not available to the depth of 100 feet. Based on the results of this geotechnical exploration, our knowledge and understanding of the regional geology, and Table 1613.5.2 of IBC 2015, AGI recommends Site Class C is assigned to this site. The following seismic design recommendations are offered based on seismic design maps prepared and provided by the American Society of Civil Engineers 7-10. We have assumed a Seismic Importance Factor of 1.5 and Seismic Design Category B.

- Mapped Acceleration Parameters
  $S_S = 0.15$
  $S_1 = 0.073$

- Site Coefficients
  $F_a = 1.2$
  $F_v = 1.7$

- Seismic Design Parameters
  $S_{MS} = 0.18$
  $S_{M1} = 0.123$
  $S_{DS} = 0.12$
  $S_{D1} = 0.082$

Once the final tank design has been completed, which includes the tank location, site grading and base elevation, AGI should be provided with a copy of the final site plans for review. Our

review of the final plans will allow verification of the conclusions and recommendations stated herein, and any revisions or modifications of our previous recommendations will be provided, if necessary.

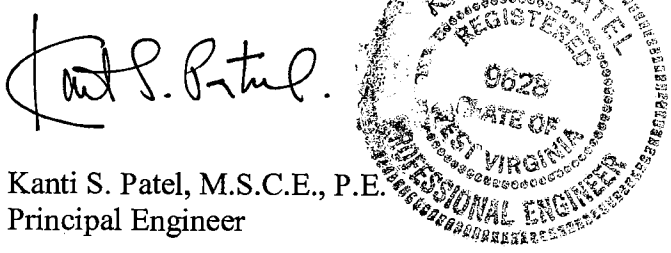
Construction Monitoring

Regular testing and monitoring by a geotechnical engineer or his representative will be a critical aspect of this project. As a minimum, these services should be provided during the site preparation, structural fill placement (if needed), and installation of the ring-wall foundation and concrete slab. The footing excavations should be inspected by the geotechnical engineer, or his representative, to confirm the proper bearing elevation prior to steel reinforcement and concrete placement.

We appreciate the opportunity of providing these services for you. Please contact our office if you have any questions concerning the information contained in this report, or if we may be of additional service to you as you progress into the final stages of the tank design.

Respectfully Submitted,

AMERICAN GEOTECH, INC.



Kanti S. Patel, M.S.C.E., P.E.
Principal Engineer

BASIS FOR RECOMMENDATIONS

This report was prepared for use by the personnel of Ghosh Engineers, and their consultants, to aid in the design of this project. The report has been prepared in accordance with currently accepted geotechnical engineering practices and no other warranties, either expressed or implied are made. The recommendations stated herein are contingent on American Geotech observing and evaluating all geotechnical aspects of the required work. We cannot be held responsible for any misinterpretations or improper implementation of our recommendations by other firms providing quality control services.

The recommendations presented in this report are based on the data obtained from test borings made at the locations shown on the Existing Conditions Plan. Variations which may exist between the test borings may not become evident until during construction. If significant variations are noted, we should be contacted so that the field conditions can be examined and applicable recommendations revised, if necessary.

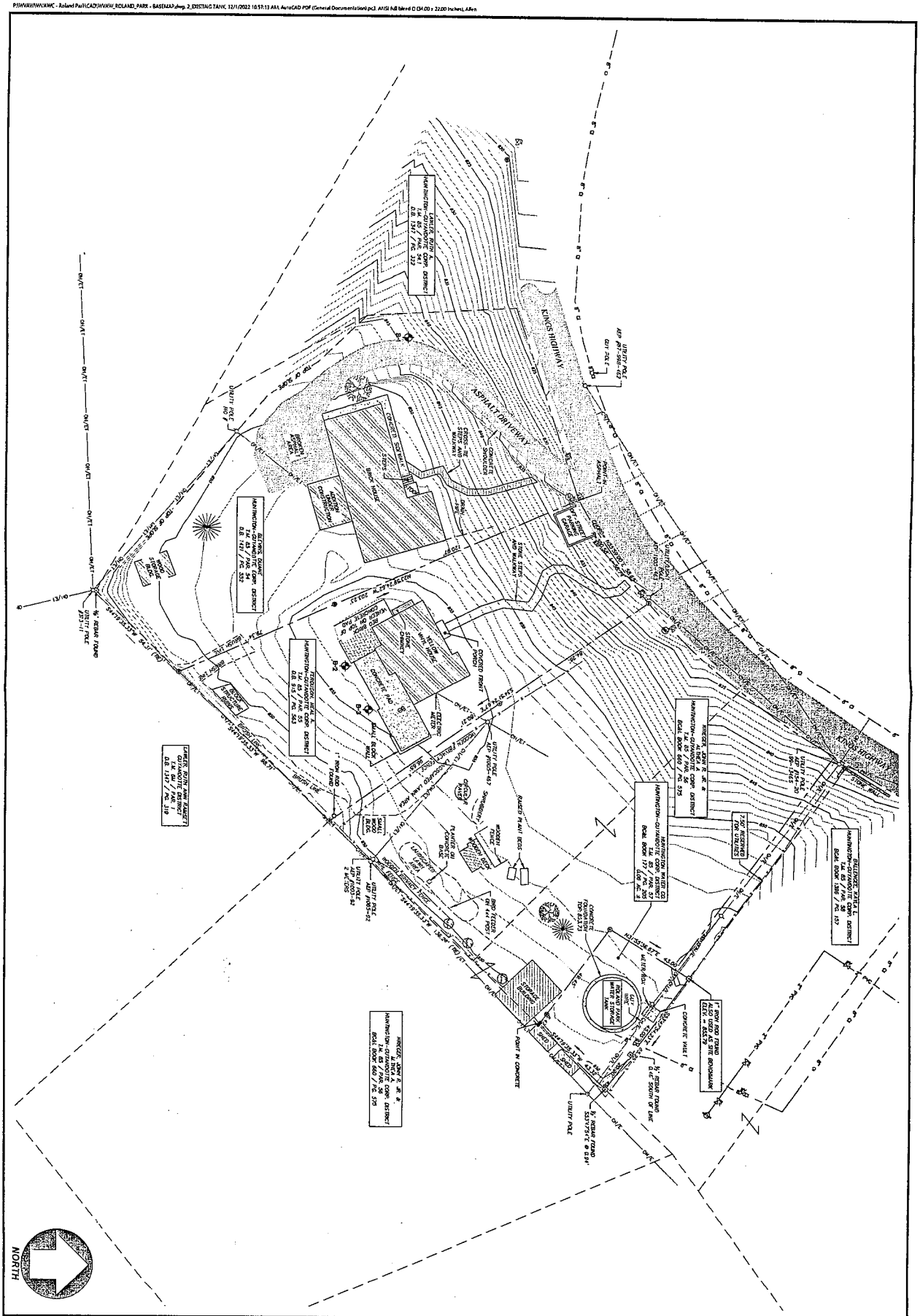
Similarly, in the event of changes in the nature, design or location of the structure, or if other developments are planned, we should be contacted so that we may review such changes to verify or make appropriate modifications to our previous conclusions and recommendations, which may be invalidated by any such changes.

We recommend that this complete report be provided to the various design team members, the contractors, and the project owner. Potential contractors should be informed of this report in the "Instructions to Bidders" section of the bid documents. This report should not be included or referenced in the actual contract documents.

TEST BORING LOCATION

American Geotech, Inc.
601 Ohio Avenue
Charleston, West Virginia 25302

P:\WV\WVWA\WC - Roland Park\CAD\WVAW_ROLAND_PARK - BASEMAP.dwg, 2_EXISTING TANK, 12/1/2022 10:57:13 AM, AutoCAD PDF (General Documentation).pc3, ANSI full bleed D (34.00 x 22.00 Inches), Allen



DRAWING	WEST VIRGINIA AMERICAN WATER ROLAND PARK WATER SYSTEM IMPROVEMENTS CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA DRAWN BY: JAK CHECKED BY: KTC PROJ. NO. SCALE: 1" = 20' DATE: 12/1/2022	**ROLAND PARK WATER STORAGE TANK** **EXISTING CONDITIONS**	GHOSH ENGINEERS o: 304.343.5300 | f: 304.343.5912 4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

NO.	DATE	DESCRIPTION
		REVISIONS

Soil Test Boring Logs and Laboratory Data

American Geotech, Inc.
601 Ohio Avenue
Charleston, West Virginia 25302

Terminology

Grain Size

Soil Fraction		Particle Size	U.S. STD. Sieve Size
Boulders		Larger than 12"	Larger than 12"
Cobbles		3" to 12"	3" to 12"
Gravel	Coarse	¾" to 3"	¾" to 3"
	Fine	4.75 mm to ¾"	#4 to ¾"
Sand	Coarse	2.00 to 4.75 mm	#10 to #4
	Medium	0.425 to 2.00 mm	#40 to #10
	Fine	0.075 to 0.475 mm	#200 to #40
Fines	Clays & Silts	smaller than 0.075 mm	smaller than #200

Plasticity characteristics differentiate between silts and clays

Relative Density

Term	"N" Value
very loose	0 - 4
loose	5 - 10
medium dense	11 - 30
dense	31 - 50
very dense	over 50

Consistency

Term	ID Procedures	"N" Value
Soft	Easily penetrated by thumb	0 - 4
Medium Stiff	Penetrated by thumb with moderate effort	5 - 8
Stiff	Penetrated by thumb with great effort	9 - 15
Very Stiff	Readily indented by thumbnail	16 - 30
Hard	Indented by thumbnail with difficulty	31 - 50
Very Hard		over 50

Relative Moisture Description

Dry	Soil noticeably below optimum moisture
Moist	near optimum, but less then liquid limit
Damp	near or exceeding liquid limit
Wet	soil below water table

Symbols

Drilling and Sampling

RC - Rock Coring: Sizes AW, BW, NW, NQ
RQD - Rock Quality Designator
DC - Drive Casing
HSA - Hollow Stem Auger
FA - Flight Auger
AG - Auger
HA - Hand Auger
SS - 2" diameter Split Barrel Sampler
ST - 3" diameter Thin-Walled Tube Sampler
AS - Auger Sample
WS - Wash Sample
NR - No Recovery
S- Sounding
ATV - All Terrain Vehicle

Laboratory Tests

PP - Pocket Penetrometer Reading, Tons/ft^2
QU - Unconfined Strength, Tons/ft^2
W - Moisture Content, %
LL - Liquid Limit, %
PL - Plastic Limit,%
D - Dry Unit Weight, lbs/ft^3

Standard Penetration Test

The penetration resistance, or N-value as it is commonly referred to, is the summation of the number of blows required to drive the last two successive 6" penetrations of the 2" diameter -18" long split barrel sampler. The sampler is driven with a 140 lb. weight falling 30". The standard penetration test is performed in compliance with procedures as set forth in ASTM D-1586

Water Level Measurement

NW - No water encountered
WD - While drilling
BCR - Before casing removal
ACR - After casing removal
CW - Caved and wet
CM - Caved and moist
BP - Backfilled upon completion

LOG OF TEST BORING

CLIENT Ghosh Engineers, Inc. **BORING NO.** B – 2

PROJECT Proposed Roland Park Water Tank – Huntington, WV **DATE START** 11/29/22

BORING LOCATION As shown on plan **DATE COMP.** 11/29/22

ELEV. REF. None available **PO. NO.**

ELEV. FT.	DEPTH FT.	DESCRIPTION OF MATERIALS	SAMPLE				
			NO.	TP	DEPTH	BLOWS/6"	REC.
	0.0						
		0.3' Topsoil with roots.					
	0.3						
		Gray and tan clay and shale	1	ss	0.0' – 1.5'	2-2-3	6"
	6.7'	fragments (claystone), dry, very	2	ss	2.5' - 4.0'	4-10-9	14"
		stiff to very hard.	3	ss	5.0' – 6.5'	12-26-27	18"
	7.0						
		1.3' Tan shale, highly weathered, soft to tough.	4	ss	7.5' - 8.3'	33-$^{50}/_{4"}$	10"
	8.3						
		Boring completed.					

GENERAL NOTES
DRILLER J. Francis
RIG NO. CME-45
RIG TYPE Track
METHOD HSA/SS

AMERICAN GEOTECH, INC.
Geotechnical, Environmental & Testing Engineers
601 Ohio Avenue
Charleston, WV 25302
(304) 340-4277

WATER LEVEL OBSERVATIONS
IMMEDIATE NW FT.
AT COMPLETION NW FT.
AFTER BP HRS. NW FT.
WATER USED IN DRILLING NW FT.

LOG OF TEST BORING

CLIENT Ghosh Engineers, Inc. **BORING NO.** B – 3

PROJECT Proposed Roland Park Water Tank – Huntington, WV **DATE START** 11/29/22

BORING LOCATION As shown on plan **DATE COMP.** 11/29/22

ELEV. REF. None available **PO. NO.**

ELEV. FT.	DEPTH FT.	DESCRIPTION OF MATERIALS	SAMPLE				
			NO.	TP	DEPTH	BLOWS/6"	REC.
	0.0						
		0.3' Topsoil.					
	0.3						
		1.7' Brown silty clay, trace roots, moist, medium stiff.	1	ss	0.0' – 1.5'	2-2-3	14"
	2.0						
		5.0' Tan and gray claystone, very soft.	2	ss	2.5' - 4.0'	5-8-9	15"
			3	ss	5.0' – 6.5'	9-13-14	15"
	7.0						
		0.9' Tan sandy shale, weathered, tough.	4	ss	7.5' - 7.9'	$^{50}/_{5"}$	3"
	7.9						
		Boring completed.					

GENERAL NOTES
DRILLER J. Francis
RIG NO. CME-45
RIG TYPE Track
METHOD HSA/SS

AMERICAN GEOTECH, INC.
Geotechnical, Environmental & Testing Engineers
601 Ohio Avenue
Charleston, WV 25302
(304) 340-4277

WATER LEVEL OBSERVATIONS
IMMEDIATE NW FT.
AT COMPLETION NW FT.
AFTER BP HRS. NW FT.
WATER USED IN DRILLING NW FT.

AMERICAN GEOTECH, INC.
601 Ohio Avenue
Charleston, West Virginia 25302

Ghosh Engineers, Inc.
Proposed Water Tank
Huntington, West Virginia

TABULATION OF TEST DATA

Hole No.	Sample No.	Depth (ft.)	Unconfined Compressive Strength (tsf)	Failure Strain (%)	Dry Density (pcf)	Water Content (%)	Pocket Penetrometer (tsf)
B-1	S-1	0.0 - 1.5				15.4	1.5
B-2	S-2	2.5 - 4.0				7.2	
B-3	S-1	0.0 - 1.5				19.7	1.75
	S-2	2.5 - 4.0				7.3	

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

June 9, 2023

Mr. Kennon Chambers, P.E.
Ghosh Engineers, Inc.
4710 Chimney Drive
Charleston, WV 25302

Re: Report of Fill Compaction & Proof-rolling
Proposed Roland Park Water Storage Tank (Basement)
111 Kings Highway
Huntington, West Virginia

Dear Mr. Chambers:

In accordance with your request, American Geotech, Inc. has performed fill compaction testing and proof-rolling of the basement backfill at the proposed Roland Park Water Storage Tank to be located at 111 Kings Highway in Huntington, West Virginia. The proposed Roland Park Water Tank site is a former dwelling with 25'x24'x7' deep basement.

American Geotech, Inc. previously perform a geotechnical exploration and analysis for this site in December 2022 and prepared geotechnical recommendation for the proposed Roland Park Water Storage Tank in Huntington, West Virginia report dated December 1, 2022. A follow up recommendations and guidelines for the back-fillings basement were provided in our letter dated May 26, 2023.

It is proposed to construct 330,000 gallon water storage tank at this site. The proposed tank will have shell height of 74 feet and a diameter of 28 feet with base elevation of tank is 853.00±. The tank will bear on or encountered weathered rock at an elevation of 850.00±.

The purpose of the proof-rolling and field observations was to provide an objective evaluation of the existing soil and supportability of the fill slab. We also provided soil compaction by visual observation, proof-rolling methods and by nuclear density gauge testing. Engineer also made one trip for proof-rolling and geotechnician performed compaction testing of each lift.

One (1) bag samples of the fill was collected and Standard Proctor tests was performed on this samples in the laboratory in accordance with test method ASTM D 698. Minor settlements are to be expected due to depth of the fill. The fill soil met the required 98% compaction as recommended.

Several of field visits were made during the fill placement. Majority of the fill being placed was a brown shale rock to brown silty sandy clay with rocks. The fill was tested using nuclear density gauge at this site. It should be noted that nuclear gauge test the density at top 8 inches of lift and total eight lifts were place in this basement. It is our opinion that the basment fill was placed in 8 inch lift and each lift was compacted at 9 8% of standard proctor density as determined by ASTM D-698 this site.

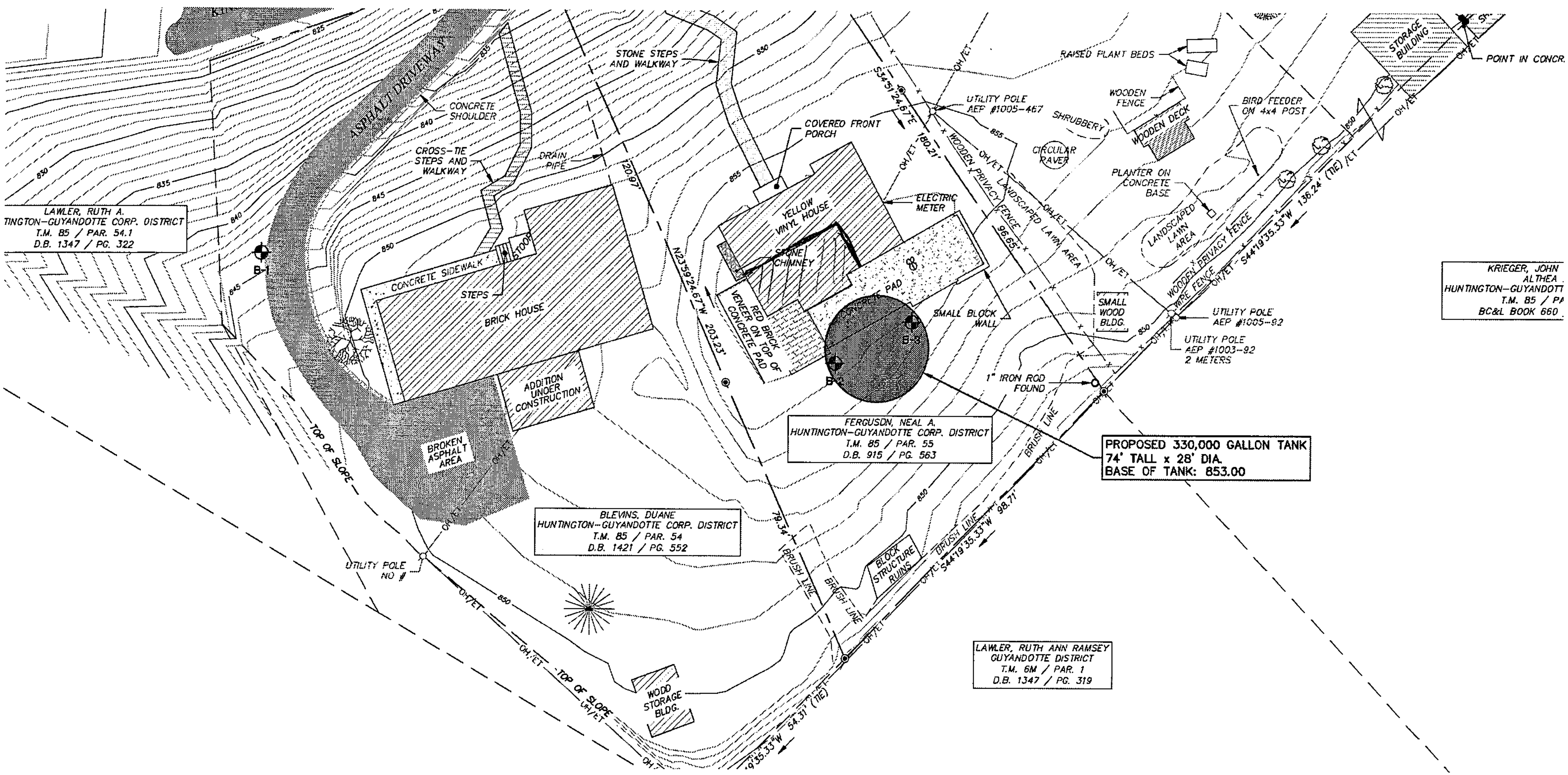
We appreciate having the opportunity of providing our services to you. If you have any question concerning the information contained in this report, please contact the writer at 340-4277.

Respectfully submitted,

AMERICAN GEOTECH, INC.

Kanti S. Patel, M.S.C.E., P.E.
Principal Engineer

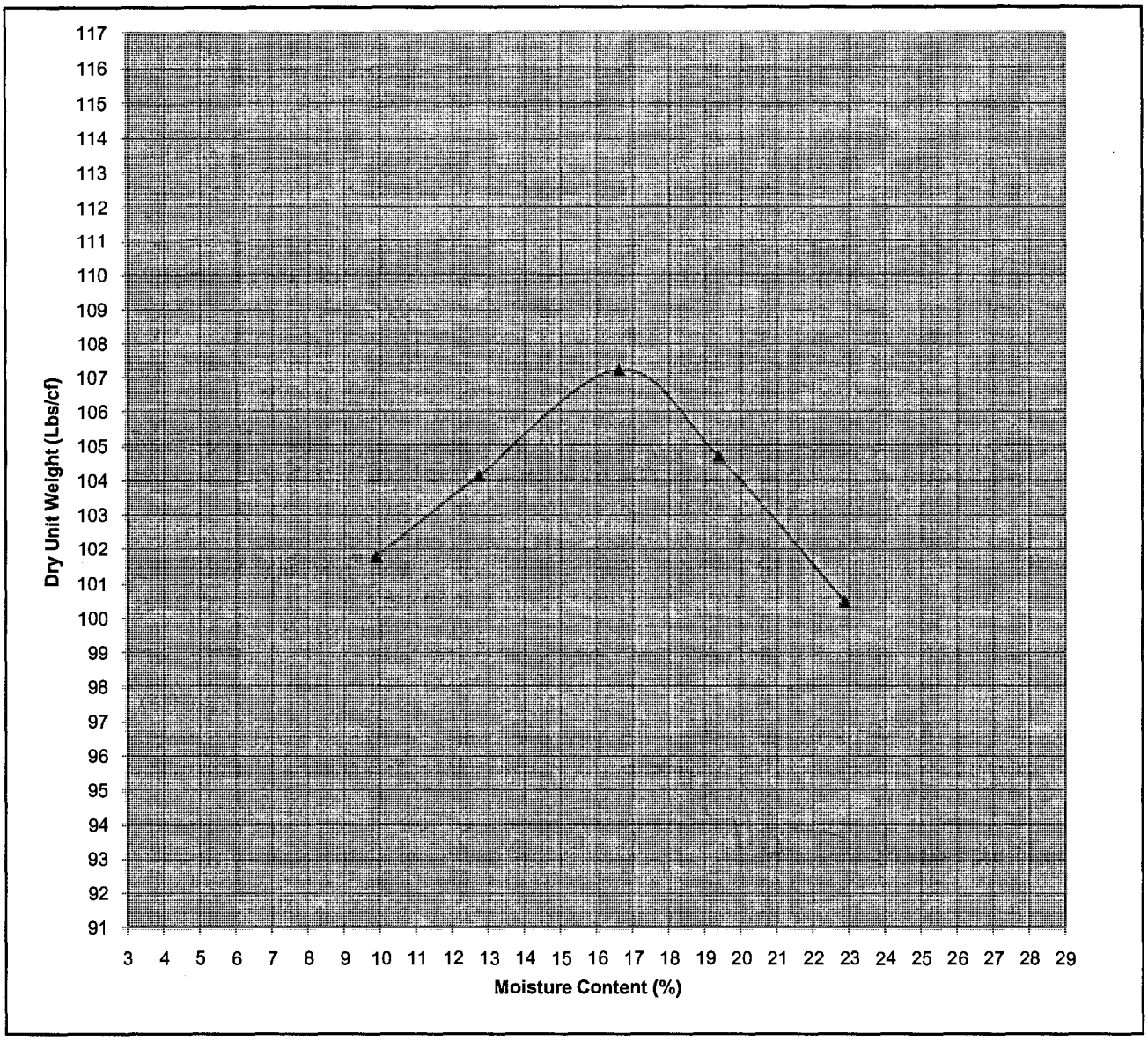
KSP/mkp.letter.ghosh engineers.roland park water storage tank.111 kings highway.huntington.wv


PROPOSED 330,000 GALLON TANK
74' TALL x 28' DIA.
BASE OF TANK: 853.00
FERGUSON, NEAL A.
HUNTINGTON-GUYANDOTTE CORP. DISTRICT
T.M. 85 / PAR. 55
D.B. 915 / PG. 563
BLEVINS, DUANE
HUNTINGTON-GUYANDOTTE CORP. DISTRICT
T.M. 85 / PAR. 54
D.B. 1421 / PG. 552
LAWLER, RUTH A.
TINGTON-GUYANDOTTE CORP. DISTRICT
T.M. 85 / PAR. 54.1
D.B. 1347 / PG. 322
LAWLER, RUTH ANN RAMSEY
GUYANDOTTE DISTRICT
T.M. 6M / PAR. 1
D.B. 1347 / PG. 319
KRIEGER, JOHN
ALTHEA
HUNTINGTON-GUYANDOTT
T.M. 85 / PA
BC&L BOOK 660
ASPHALT DRIVEWAY
CONCRETE SHOULDER
CROSS-TIE STEPS AND WALKWAY
DRAIN PIPE
STONE STEPS AND WALKWAY
COVERED FRONT PORCH
YELLOW VINYL HOUSE
STONE CHIMNEY
RED BRICK VENEER ON TOP OF CONCRETE PAD
ELECTRIC METER
PAD
SMALL BLOCK WALL
BRICK HOUSE
CONCRETE SIDEWALK
STEPS
STOOP
ADDITION UNDER CONSTRUCTION
BROKEN ASPHALT AREA
UTILITY POLE NO #
WODD STORAGE BLDG.
TOP OF SLOPE
BRUSH LINE
BLOCK STRUCTURE RUINS
1" IRON ROD FOUND
SMALL WOOD BLDG.
UTILITY POLE AEP #1005-92
UTILITY POLE AEP #1003-92 2 METERS
UTILITY POLE AEP #1005-467
WODDEN PRIVACY FENCE
LANDSCAPED LAWN AREA
CIRCULAR PAVER
SHRUBBERY
RAISED PLANT BEDS
WOODEN FENCE
WOODEN DECK
BIRD FEEDER ON 4x4 POST
PLANTER ON CONCRETE BASE
WIRE FENCE
STORAGE BUILDING
POINT IN CONCR.
S34°51'24.67"E 180.21'
N23°59'24.67"W 203.23'
S44°19'35.33"W 136.24' (TIE)
S44°19'35.33"W 98.71'
S44°19'35.33"W 54.31' (TIE)
96.65'
79.34'
20.97'
B-1
B-2
B-3

American Geotech, Inc.

Geotechnical, Environmental, and Testing Engineers
601 Ohio Avenue
Charleston, West Virginia 25302
(304) 340 - 4277

Standard Proctor



Client:	Ghosh Engineers, Inc.	Date:	6/2/2023
Project:	Roland Park Water Tank - Huntington, WV		
Material:	Dark brown silty clay	Maximum Dry Density:	107.2
Location:		Optimum Moisture:	16.7%
Sample:	Bag sample		
Depth, Ft:		LL:	PL: PI:

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

Field Activity Report

Date: 5-31-23 Weather Conditions: Clear

Temperature AM: 73° Temperature PM: —

Client: Ghosh Engineering

Project: 111 Kings Hwy

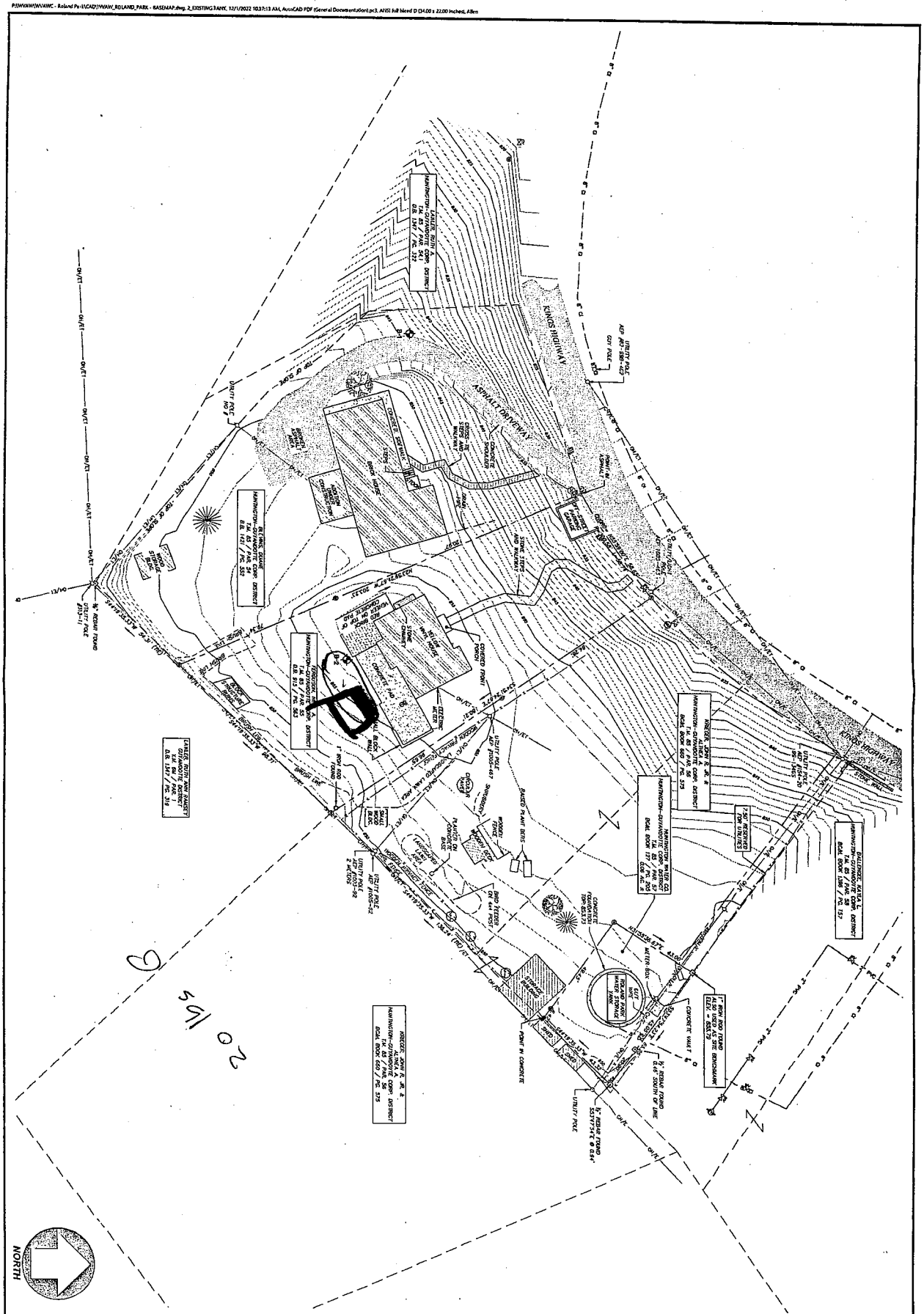
Contractor: CJ Hughes

Field Notes

Technician traveled to the site to collect a proctor sample.

Technician: H. Hall

P:\WVAW\WVAWC - Roland Pk\CAD\WVAW_ROLAND_PARK - BASEMAP.dwg, 2_EXISTING TANK, 12/1/2022 10:37:13 AM, AutoCAD PDF (General Documentation).pc3, ANSI full bleed D (34.00 x 22.00 Inches), Allen



WEST VIRGINIA AMERICAN WATER
ROLAND PARK WATER SYSTEM IMPROVEMENTS
CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA

DRAWN BY: JAK CHECKED BY: KTC PROJ. NO.
SCALE: 1" = 20' DATE: 12/1/2022

DRAWING

ROLAND PARK WATER STORAGE TANK
EXISTING CONDITIONS

GHOSH ENGINEERS
o: 304.343.5300 | f: 304.343.5812
4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

NO.	DATE	DESCRIPTION
		REVISIONS

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

Field Activity Report

Date: 6-6-23 Weather Conditions: Sunny

Temperature AM: 65° Temperature PM: 81°

Client: Ghosh Engineering

Project: 111 Kings Hwy Water tank

Contractor: CT Hughes

Field Notes

Technician traveled to the site to perform compaction tests on the basement backfill. The first 2 tests that were taken did not meet required compaction percentage, so contractor rolled it again and 2 more tests were taken. All tests from that point met a 98% compaction rate. See attached report for more details.

Technician: M. Hall

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

Soil Compaction Report

Date: 6-6-23' Weather Conditions: Sunny

Temperature AM: 65° Temperature PM: 81°

Nuclear Meter Used: TROXLER Nuclear Meter Serial #: 67884

Client: Ghosh Engineering

Project: [illegible] Water tank

Contractor: C.S. Hughes

General Area Being Filled: Basement

Hauling Equipment Used: Dumptruck Water Added: 0

Rolling Equipment: Sheeps Foot trench roller

Source of Borrow: off-site

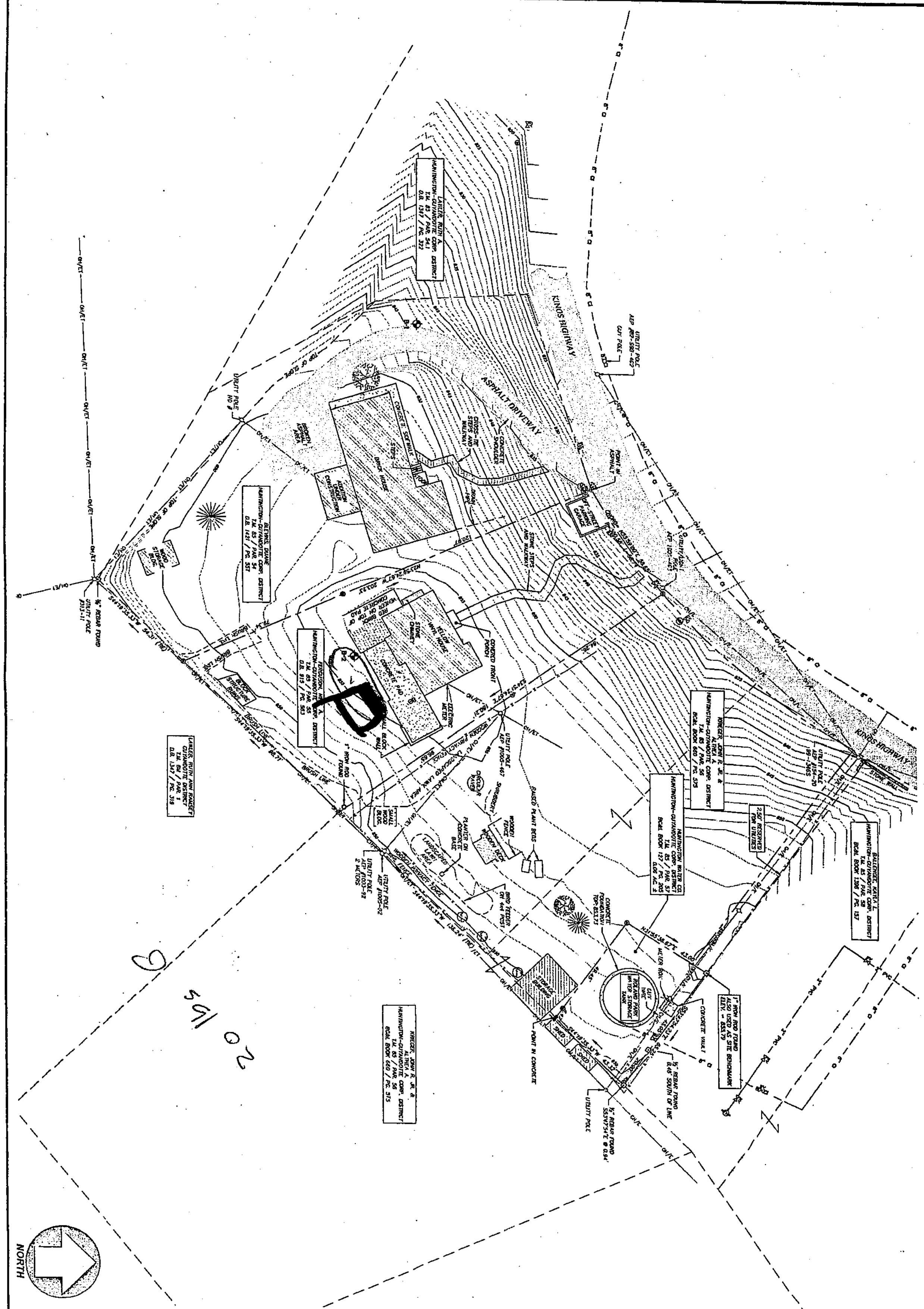
Material Description: Redish Brown silty clay

Elevations are Based on:

*Density Test No. R1 & R2 Retest of Test: 1+2 Performed on: 6-6-23

	Test Location Description	Fill Elev. Depth Below Grade	MAX Dry Density @ Opt. % Moist.	Field Dry Density (pcf)	Field Moisture (%)	Compaction (%)	Compaction Required (%)
1.)	Basement		107.2@16.7	104.4	17.4	97.4%	95%
2.)				103.5	16.1	96.5%	
* (R1)				108.8	17.0	101.5%	
* (R2)				111.3	16.8	103.8%	
3.)				109.6	16.6	102.2%	

Technician: H. Hall



DRAWING	WEST VIRGINIA AMERICAN WATER ROLAND PARK WATER SYSTEM IMPROVEMENTS CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA DRAWN BY: JAK CHECKED BY: KTC PROJ. NO. SCALE: 1" = 20' DATE: 12/1/2022	ROLAND PARK WATER STORAGE TANK EXISTING CONDITIONS	GHOSH ENGINEERS o: 304.343.5300 | f: 304.343.5912 4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302

NO.	DATE	DESCRIPTION
REVISIONS		

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

Field Activity Report

Date: 6-7-23

Weather Conditions: Cloudy/overcast

Temperature AM: 68°

Temperature PM: 74°

Client: Ghosh Engineering

Project: 111 Kings Hwy Water tank

Contractor: C J Hughes

Field Notes

Technician traveled to the site to perform compaction tests on the backfilled basement. All tests taken passed with a compaction rate above 98%. Contractors dressed up the hill near the road and hauled off debris from the site. See attached report for compaction details.

Technician: M. Hall

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

Soil Compaction Report

Date: 6-7-23' Weather Conditions: Cloudy / overcast

Temperature AM: 68° Temperature PM: 74°

Nuclear Meter Used: TROXLER Nuclear Meter Serial #: 67884

Client: Ghosh Engineering

Project: 111 Kings Hwy Water Tank

Contractor: CJ Hughes

General Area Being Filled: Old basement

Hauling Equipment Used: Dump truck Water Added: 0

Rolling Equipment: Sheeps foot trench roller

Source of Borrow: Off site

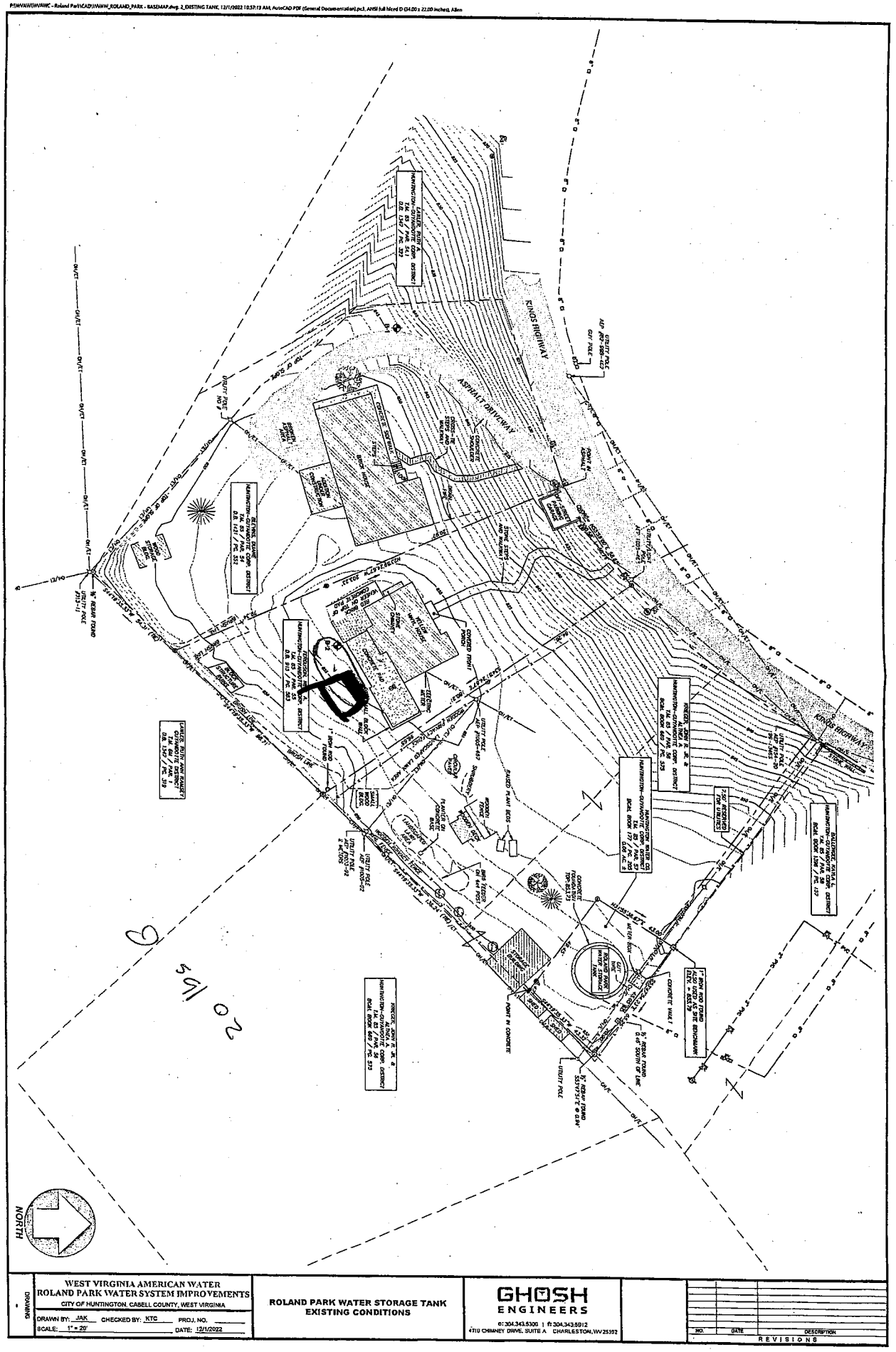
Material Description: Redish Brown silty Clay

Elevations are Based on: Subgrade

*Density Test No. Retest of Test: Performed on:

	Test Location Description	Fill Elev. Depth Below Grade	MAX Dry Density @ Opt. % Moist.	Field Dry Density (pcf)	Field Moisture (%)	Compaction (%)	Compaction Required (%)
1.)	Basement	-1'	107.2	105.2	17.3%	98.2	95%
2.)	↓	0'	↓	106.6	18.6%	99.4	↓
3.)				111.3	17.2%	103.8	
4.)				110.7	15.7%	103.3	
5.)				110.7	16.5%	103.3	
6.)	↓		↓	105.4	18.4%	98.3	↓

Technician: H. Hall



DRAWING	WEST VIRGINIA AMERICAN WATER ROLAND PARK WATER SYSTEM IMPROVEMENTS CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA DRAWN BY: JAK CHECKED BY: KTC PROJ. NO. SCALE: 1" = 20' DATE: 12/1/2022	ROLAND PARK WATER STORAGE TANK EXISTING CONDITIONS	GHOSH ENGINEERS o: 304.343.5300 | f: 304.343.5812 4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302	NO. DATE DESCRIPTION REVISIONS

American Geotech, Inc.
601 Ohio Avenue
Charleston, WV 25302
(304) 340-4277
Fax 340-4278

AMERICAN GEOTECH, INC.

Geotechnical, Environmental and Testing Engineers

REPORT OF

REVISED
SLOPE STABILITY ANALYSIS FOR CUT SLOPE
ROLAND PARK WATER TANK ACCESS ROAD
111 KING'S HIGHWAY
HUNTINGTON, WEST VIRGINIA

Prepared For

GHOSH ENGINEERS, INC.
DUNBAR, WEST VIRGINIA
MAY - 2024

AMERICAN GEOTECH, INC.

GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE
CHARLESTON, WV 25302
(304) 340-4277
Fax (304) 340-4278

May 20, 2024

Mr. Kennon Chambers, P.E.
Ghosh Engineers, Inc.
1 Dunbar Plaza, Suite 200
Dunbar, WV 25063

RE: Slope Stability Analysis for Cut Slope (Revised)
Roland Park Water Tank Access Road
111 King's Highway
Huntington, West Virginia

Dear Mr. Chambers:

In accordance with your request, American Geotech, Inc. (AGI) has reviewed the provided plans for the proposed cut slope design, completed a site visit, and performed slope stability analysis, with additional shallow sections, for the proposed access road to the Roland Park Water Tank in Huntington, West Virginia.

AGI completed a geotechnical engineering report for the construction of the Roland Park Water Tank site access road and submitted our report on December 6, 2024. The original access road and retaining wall plan has been abandoned in favor of the new access road alignment entirely contained on the lot of the water tank site. A stability analysis for the planned access road cut slope was not included in our original geotechnical report.

The new 127 foot long access road alignment traverses the sloping hillside from King's Highway up to the tank pad. Final ground elevations for the access road range from 829 feet, at the beginning on King's Highway, up to 852 feet at the new tank pad. The access road will be constructed as a "V" notched cut running generally perpendicular to the existing slope to produce a 12 foot wide roadway. The provided grading plan indicates that cut slopes are designed at 1.5H:1V with maximum cut slope heights of 13 feet.

Slope Stability Analysis

American Geotech, Inc. performed slope stability analysis on the proposed cut slopes at the most critical section (maximum cut sections). AGI assumed that the onsite soil and rock encountered along the existing cut slope will be excavated in accordance with the engineer's recommendations and will be disposed of off-site. AGI recommends that the designer and owner consider the following recommendations:

1. All cut slopes shall be constructed by peeling away the soil or rock using an excavator. Pushing cut materials from the top of the slope with a dozer shall not be permitted.

2. A hoe-ram may be required to excavate the rock formations in the lower parts of the cut slopes.

3. Diversion berms and ditches should be installed as necessary to avoid exterior cut slope saturation and erosion.

AGI has completed slope stability analysis on two (2) critical cut slope sections. To address review comments submitted by Terradon Corporation, additional analysis was completed to show shallow failure slices on the critical section, as well as confining the soil portion of the cut slopes with a 6 inch thick layer of rip rap. We selected the critical cut cross-sections for analysis where the proposed benching would cut deepest into the existing ground. The locations of the critical design sections are shown on the Grading Plan prepared by Ghosh Engineers and dated 12/5/2023. Subsurface information obtained from the 2022 field exploration and laboratory test programs were used to develop a soil/rock model and perform an evaluation of the slope stability. AGI has also assumed that the bedrock is relatively horizontally bedded. No inclined bedding or unfavorable dipping of the rock formation is present. Slope stability was analyzed using effective stress and total stress methods, which use long-term, post construction conditions. Effective stress analysis assumes that the post construction slopes will be maintained in drained conditions by providing drainage ditches and rip rap on the cut slopes. In the Total Stress analysis, we assumed that the pore pressure is not allowed to dissipate and stresses are carried by pore pressure. This represents maximum stresses that occur immediately after construction when the slopes are most vulnerable.

The Critical Section was determined to be at the cross-section at Station 0+75 and has a proposed 1.5H:1V slope ratio. Slope stability analysis for cut slope on the right side of roadway centerline revealed a factor of safety of 1.646 under effective stress analysis and 1.54 under total stress analysis. Slope stability analysis for the cut slope on the left side of roadway centerline at Station 0+75 revealed a factor of safety of 1.566 under effective stress and 1.723 under total stress.

Section	Description	Factor of Safety
0+75	1.5H:1V cut slope Right of Centerline (Effective Stress w/ rip rap)	1.646
0+75	1.5H:1V cut slope Left of Centerline (Effective Stress w/ rip rap)	1.566
0+75	1.5H:1V cut slope Left of Centerline (Shallow failure)	3.182
0+75	1.5H:1V cut slope Right of Centerline (Total Stress)	1.54
0+75	1.5H:1V cut slope Left of Centerline (Total Stress)	1.723

Engineering Properties and Soil Strength Parameters

Based on our review of the site information and our original geotechnical report, AGI recommends the following parameters be used for the various encountered materials at the site. These estimated engineering properties should be used for the appropriate soil and rock materials

in the effective stress and total stress analysis for the slope stability. These are the same values used in our original geotechnical report for the proposed slopes.

Material Description	Φ (deg)	c (psf)	γ (pcf)	w (%)
Natural Soil (Effective)	22	100	110	16
Natural Soil (Total)	0	200	125	25
Residual Soil	25	200	115	14
Rock Below 8 feet	38	1000	150	10

Φ – Angle of Internal Friction
c – Cohesion of Soil
γ – Unit Weight
w – Moisture Content

Earthwork Recommendations

Earthwork is expected to include the excavation of the existing cut slopes and access road to achieve the finished grades in accordance with the project plans. Earthwork is also expected to include subsurface excavation and construction of drainage ditches.

Identification of unstable areas is essential to the successful construction and longevity of the proposed slopes. Soft, loose unsuitable soils should be removed prior to final slope grading. If the area continues to display an unsatisfactory surface, the geotechnical engineer should be consulted to provide additional methods to stabilize the surface or depth to anticipated competent material. Controlling subsurface water in the embankments is the key for the successful performance of the cut slopes.

Wet Weather Considerations

The contractor shall be responsible for protecting the site subgrades in cut areas to avoid damage by precipitation events. This protection may include but is not limited to smooth drum rolling to seal off the surface, and placing a layer of soil above previously compacted subgrades. Additional protection devices include, but are not limited to, diversion berms, ditches, erosion control matting, rock drains, etc.

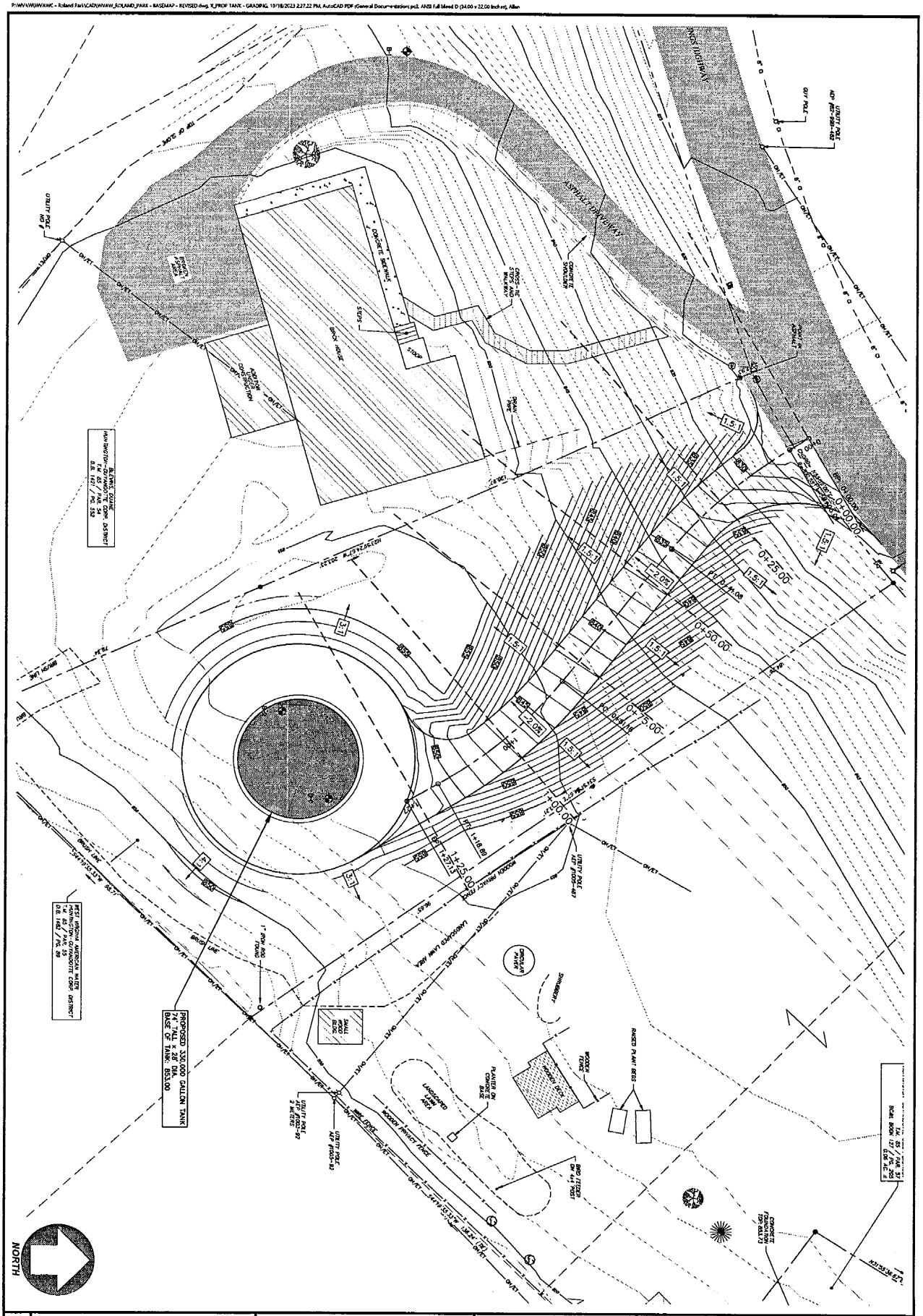
We appreciate the opportunity to be of service on this project. If you have any questions or require additional services, please contact us at 304-340-4277.

Respectfully Submitted,
AMERICAN GEOTECH, INC.

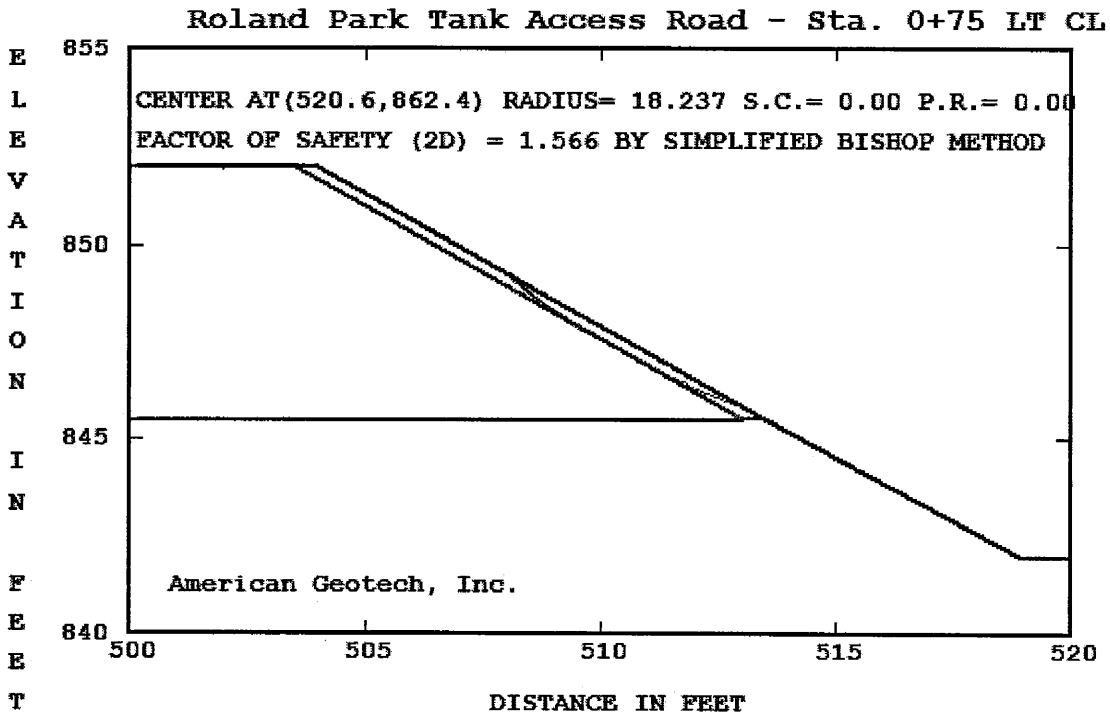
Kanti S. Patel, P.E.
Principal Engineer

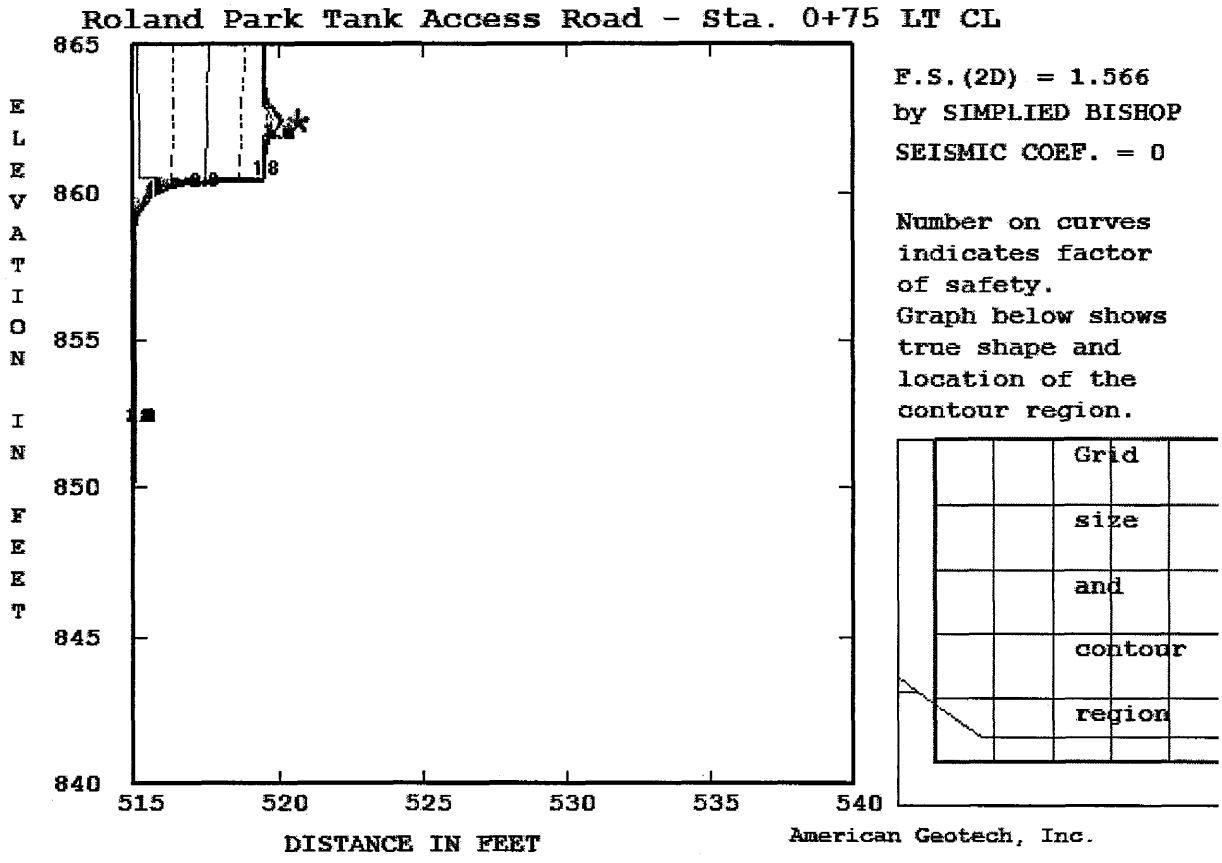
KANTI S. PATEL
REGISTERED
9628
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

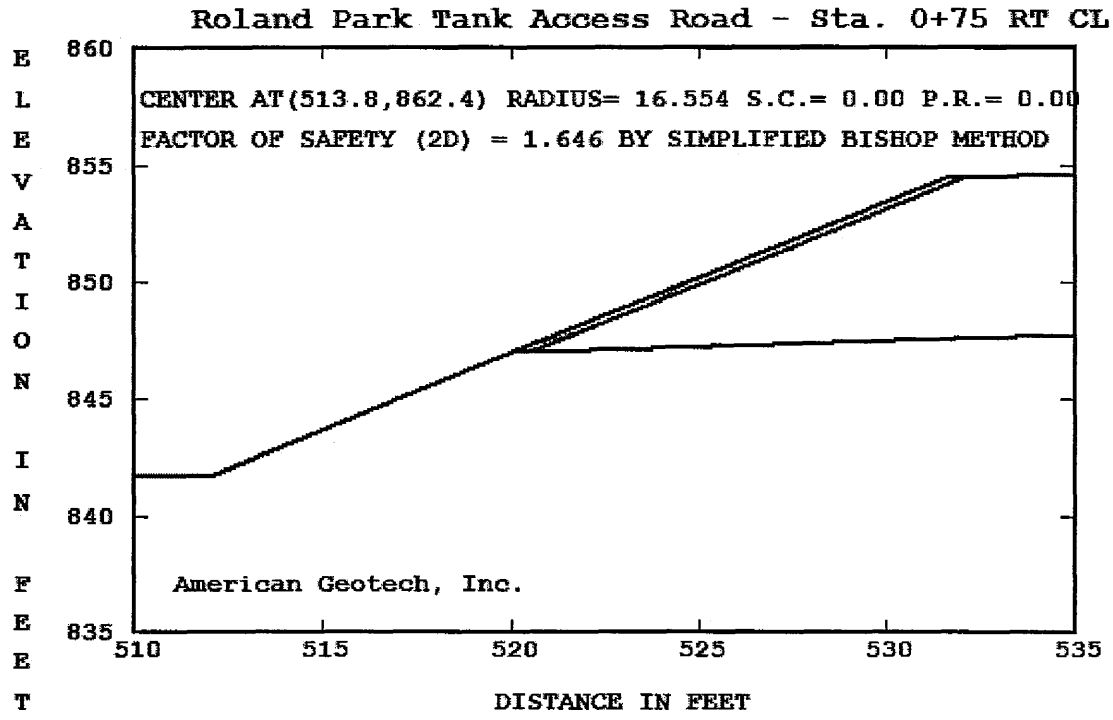
P:\WV-WW\WVAWC - Roland Park\CAD\WVAW_ROLAND_PARK - BASEMAP - REVISED.dwg, K_PROP TANK - GRADING, 10/18/2023 2:27:22 PM, AutoCAD PDF (General Documentation).pc3, ANSI Full Bleed D (34.00 x 22.00 Inches), Allen

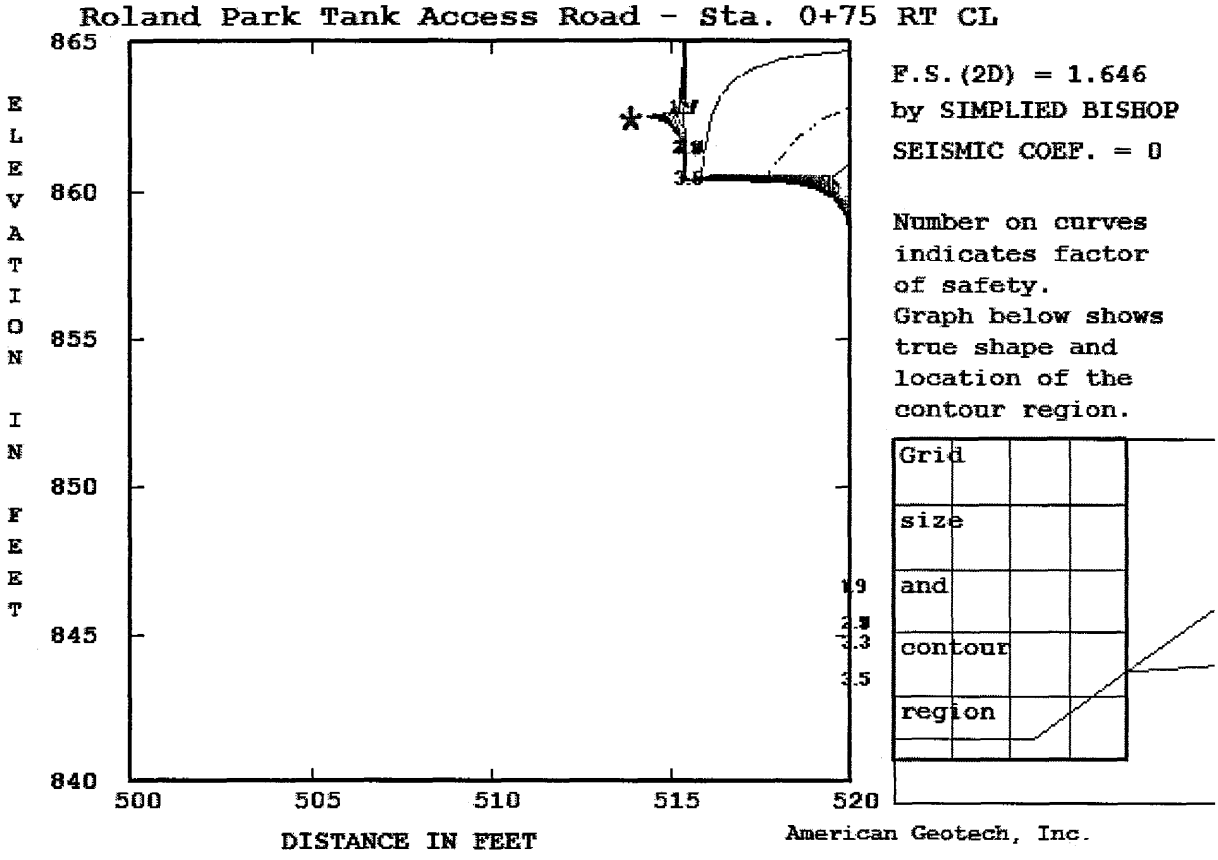


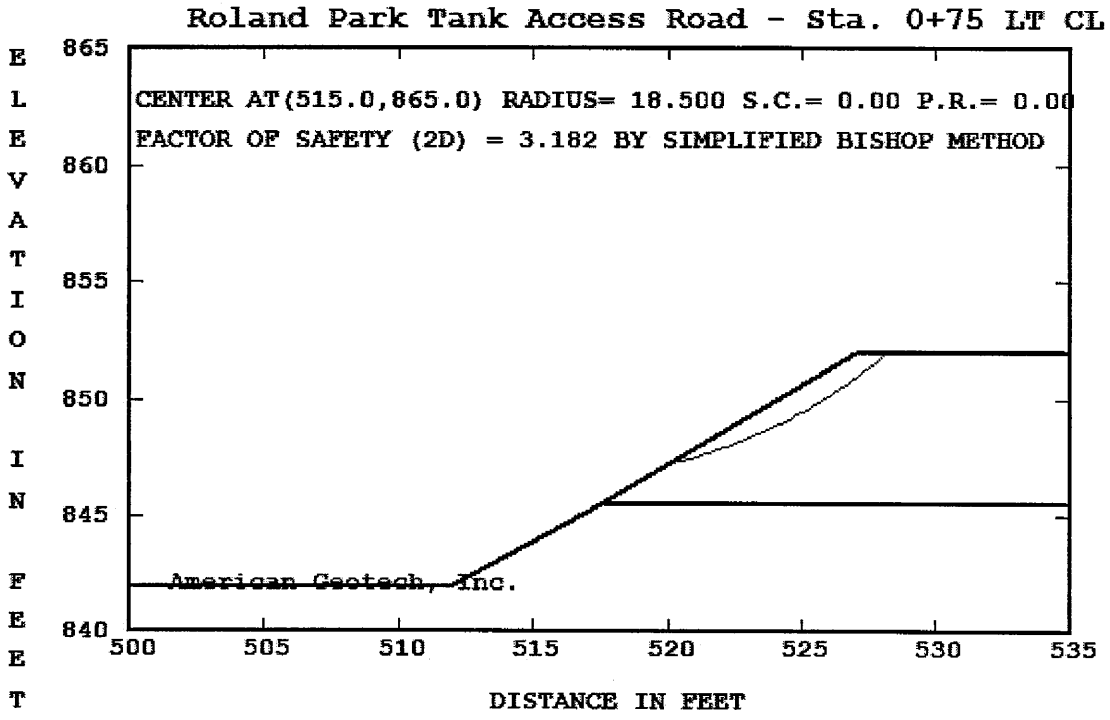
DRAWING	WEST VIRGINIA AMERICAN WATER ROLAND PARK WATER SYSTEM IMPROVEMENTS CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA DRAWN BY: JAK CHECKED BY: KTC PROJ. NO. _____ SCALE: 1" = 10' DATE: 9/20/2023	ROLAND PARK WATER STORAGE TANK GRADING PLAN	GHOSH ENGINEERS o: 304.343.8300 | f: 304.343.5912 4710 CHIMNEY DRIVE, SUITE A CHARLESTON, WV 25302	NO. DATE DESCRIPTION REVISIONS


Roland Park Tank Access Road - Sta. 0+75 LT CL
CENTER AT(520.6,862.4) RADIUS= 18.237 S.C.= 0.00 P.R.= 0.00
FACTOR OF SAFETY (2D) = 1.566 BY SIMPLIFIED BISHOP METHOD
American Geotech, Inc.
ELEVATION IN FEET
855
850
845
840
500
505
510
515
520
DISTANCE IN FEET

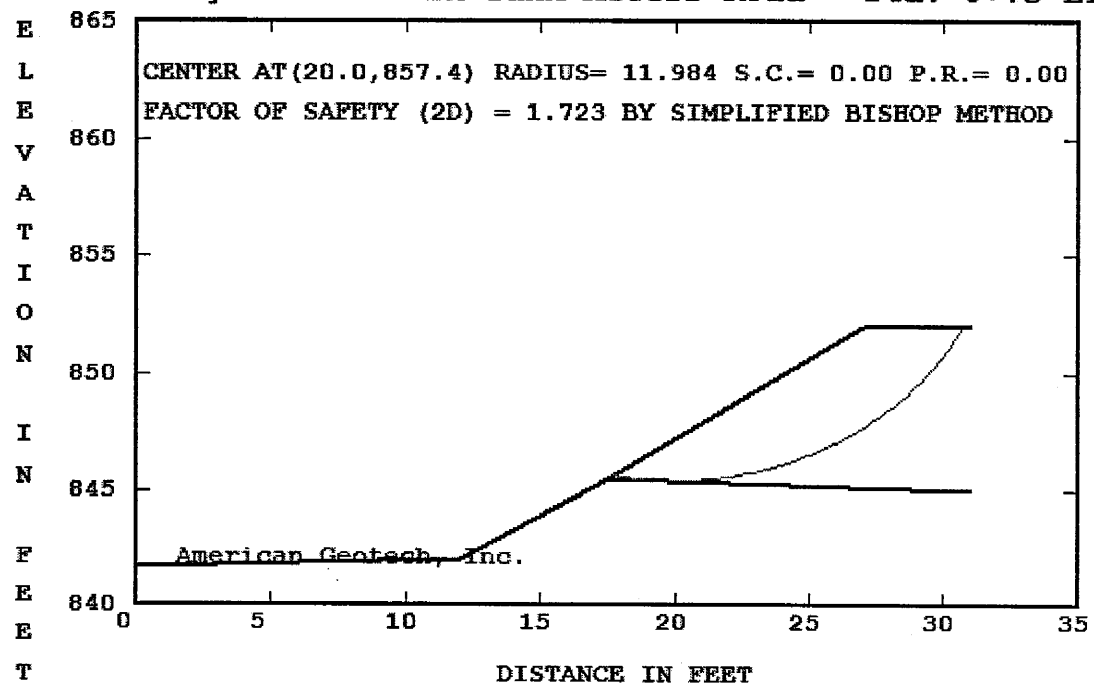

Roland Park Tank Access Road - Sta. 0+75 LT CL
ELEVATION IN FEET
865
860
855
850
845
840
515
520
525
530
535
540
DISTANCE IN FEET
F.S.(2D) = 1.566
by SIMPLIED BISHOP
SEISMIC COEF. = 0
Number on curves indicates factor of safety.
Graph below shows true shape and location of the contour region.
Grid size and contour region
American Geotech, Inc.


Roland Park Tank Access Road - Sta. 0+75 RT CL
CENTER AT(513.8,862.4) RADIUS= 16.554 S.C.= 0.00 P.R.= 0.00
FACTOR OF SAFETY (2D) = 1.646 BY SIMPLIFIED BISHOP METHOD
American Geotech, Inc.
ELEVATION IN FEET
860
855
850
845
840
835
510
515
520
525
530
535
DISTANCE IN FEET

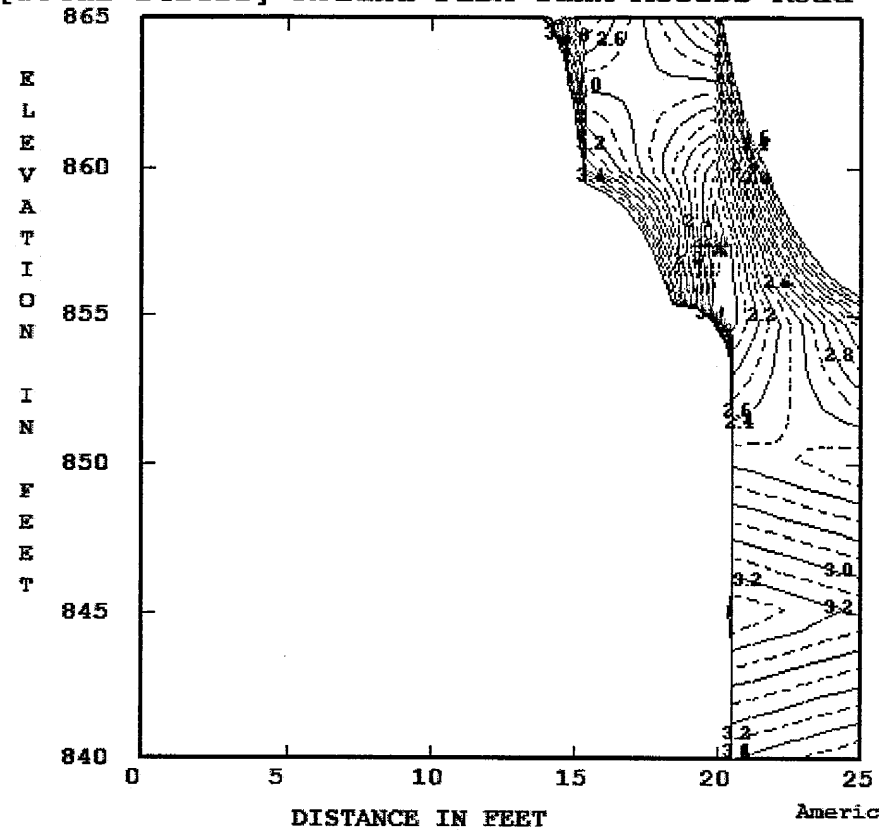

Roland Park Tank Access Road - Sta. 0+75 RT CL
ELEVATION IN FEET
865
860
855
850
845
840
500
505
510
515
520
DISTANCE IN FEET
F.S.(2D) = 1.646
by SIMPLIED BISHOP
SEISMIC COEF. = 0
Number on curves
indicates factor
of safety.
Graph below shows
true shape and
location of the
contour region.
Grid
size
and
contour
region
American Geotech, Inc.


Roland Park Tank Access Road - Sta. 0+75 LT CL
CENTER AT(515.0,865.0) RADIUS= 18.500 S.C.= 0.00 P.R.= 0.00
FACTOR OF SAFETY (2D) = 3.182 BY SIMPLIFIED BISHOP METHOD
American Geotech, Inc.
ELEVATION IN FEET
865
860
855
850
845
840
500
505
510
515
520
525
530
535
DISTANCE IN FEET

[Total Stress] Roland Park Tank Access Road - Sta. 0+75 LT CL

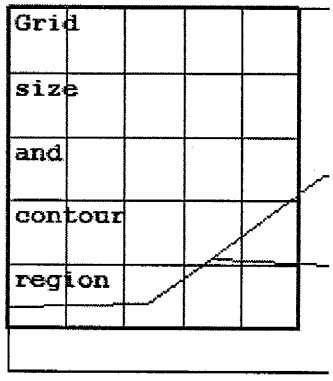


[Total Stress] Roland Park Tank Access Road - Sta. 0+75 LT CL



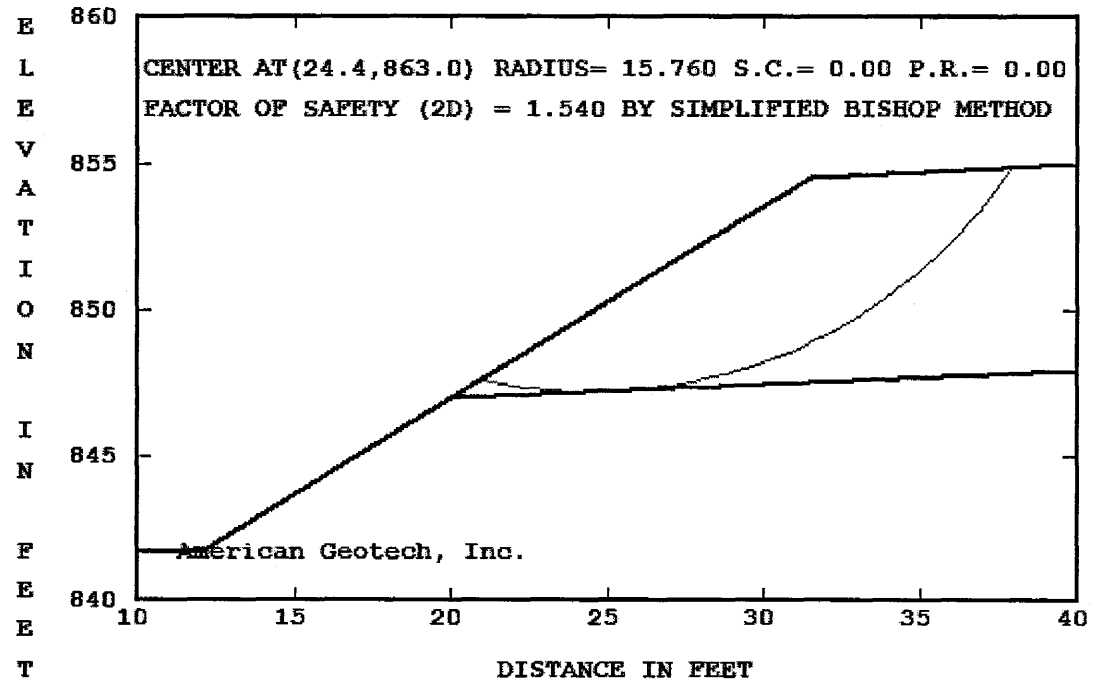
F.S.(2D) = 1.723
by SIMPLIED BISHOP
SEISMIC COEF. = 0

Number on curves indicates factor of safety.
Graph below shows true shape and location of the contour region.

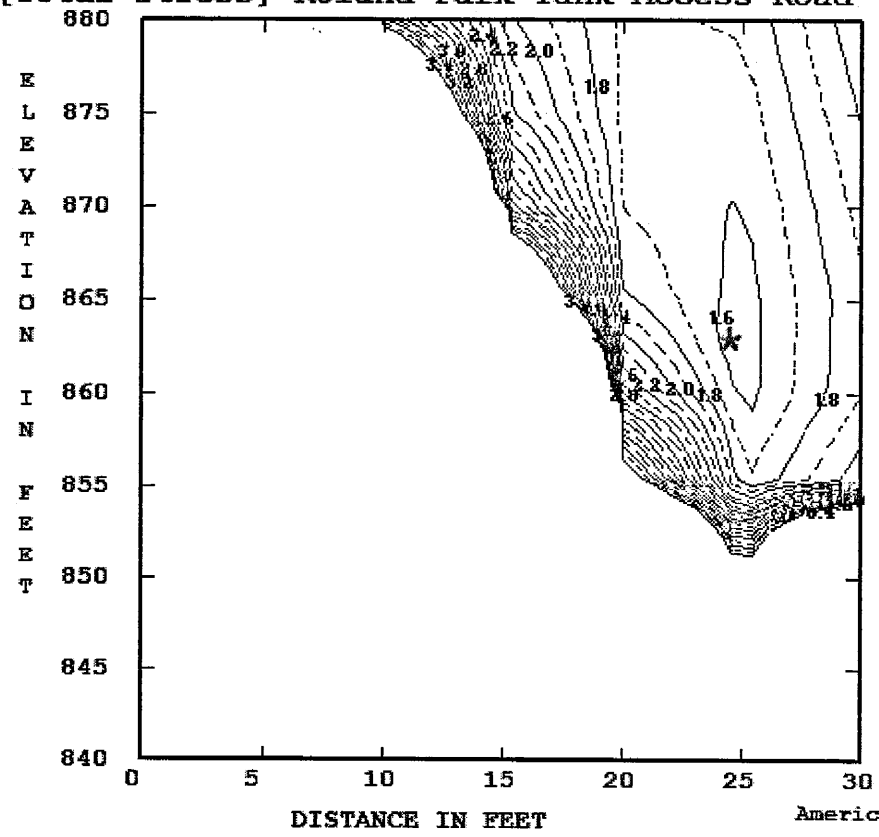


American Geotech, Inc.

[Total Stress] Roland Park Tank Access Road - Sta. 0+75 RT CL

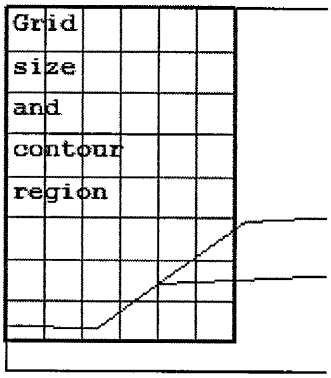


[Total Stress] Roland Park Tank Access Road - Sta. 0+75 RT CL



F.S.(2D) = 1.540
by SIMPLIED BISHOP
SEISMIC COEF. = 0

Number on curves indicates factor of safety.
Graph below shows true shape and location of the contour region.



American Geotech, Inc.

City of Huntington Planning Commission January 6, 2024

Staff Report: A petition to rezone properties from R-2 Single Family Residential District to I-1 Light Industrial/Commercial District.

PC 25-01

Issue: A petition to rezone properties from R-2 Single-family Residential District to I-1 Light Industrial/Commercial District. These properties are located on Monroe Avenue.

Petitioner/Owner: Quantum Properties, 707 7th Street West, Huntington, WV 25704

Introduction

Quantum Properties is the petitioner to a request to rezone six properties on the 600 block of Monroe Avenue from R-2 Single-family Residential District to I-1 Light-Industrial/Commercial District.

Existing Conditions

These properties are currently zoned R-2 Single-family Residential and consist of four (4) parcels of single-family homes that are being used as office space for Richwood Industries; two (2) parcels that are a continuation of the adjacent industrial use, and one (1) parcel owned by a neighboring industry consisting of a gravel lot used as storage.

Proposed Conditions

The petitioner is proposing to rezone these properties to I-1 Light Industrial/ Commercial District. This would align the properties with the Plan2035 Future Land Use Map as the adjoining properties to the east are already zoned I-1 Light Industrial/Commercial District on both sides of Monroe Avenue.

According to Article 1333, the purpose of the I-1 Light Industrial/Commercial District is to "provide an area where various light industrial activities can be accommodated without creating undesirable or incompatible situations with surrounding land uses."

The I-1 Light Industrial/Commercial District permits a variety of commercial and industrial uses by-right that are not permitted in the R-2 District, including but not limited to:

- Group residential Facilities, dormitories, assisted living.
- Boarding house
- Community centers and gardens
- Banquet Halls
- Brewpub
- Commercial greenhouse
- Indoor recreational facilities
- Microbrewery/microdistillery
- Financial Institutions
- Flea Market
- Funeral home
- Laundromat/dry cleaning services
- Artisan Manufacturing
- Medical Offices
- Nanobrewery
- Offices
- Personal services
- Pet Store/Services
- Repair Shop
- Retail sales and services
- Restaurants
- Tattoo parlor
- Distribution facilities

- Laboratory
- Indoor manufacturing
- Outdoor material and bulk supply sales
- Light and traditional warehousing
- Wholesale business

In addition, the I-1 Light Industrial/ Commercial District conditionally permits a number of uses that would not be permitted in an R-2 District. Uses that are conditionally permitted must be approved through a public hearing in front of the Board of Zoning Appeals, which must consider the impact of the proposed use on surrounding properties in making a decision and where the public has a right to voice an opinion. The following is a list of conditional uses in an I-1 District that would not be permitted in an R-2 District:

- Halfway house
- Hotel/Inn
- Shelter/Mission
- Adult Uses
- Animal Boarding and Training
- Animal Hospital
- Auto Service and Repair Shop
- Bar
- Carwash
- Outdoor Recreational Facility
- Drive-in or Drive-thru
- Fuel Sales
- Hospitals
- Indoor Shooting Range
- Limited Video Lottery
- Medical Clinic
- Self-Storage
- Trade School
- Parking Garage
- Off-site Parking Lot
- Crematories
- Communication Network Facility, headend, or hub
- Junkyard or Salvage Centers
- Manufacturing
- Recycling Center
- Towing Service

The I-1 District allows for higher-intensity development than R-2, with higher buildings, and additional lot coverage. Please see the attached Differences in Development Requirements chart for an overview of both zoning districts.

Pictures

View of the lots proposed to be rezoned facing southwest towards the 600 block of Monroe Ave.

View of the three lots proposed to be rezoned facing Northwest towards the 600 block of Monroe Ave. including the grass alley.

Comprehensive Plan

The Future Land Use map of the Plan2035 Comprehensive Plan designates this area as Light Industrial and Commercial. This designation provides a lower intensity industrial area that allows creative reuse of industrial sites that can complement certain residential areas. Characteristics include:

- Medium sided lots near railroads and riverfronts
- Industrial lots that are close to residential uses
- Allows for mixed light industrial, commercial and residential uses.
- Residential density per acre increases in areas near transitions
- Transition large industry to smaller industrial uses if viable.

Rezoning Standard

The Planning Commission must consider the following when reviewing a petition for rezoning:

(1) Is the proposed rezoning consistent with the comprehensive plan?

(2) If not consistent with the comprehensive plan, have there been major changes of an economic, physical or social nature within the area involved which were not anticipated when the comprehensive plan was adopted?

(3) If there have been major changes, have those changes have substantially altered the basic characteristics of the area?

Staff Comments

Staff recommends approval because the requested rezoning is in line with the Plan2035 Future Land Use Map.

Attachments

- Application
- Differences in Development Chart
- Aerial Map
- Zoning Map
- Future Land Use Map

For office use only	
Received:	Project Name:

PLANNING & ZONING

City of Huntington
Planning & Zoning
P.O. Box 1659 | Huntington, WV 25717
(304) 696-5540, option 3
planningdept@huntingtonwv.gov

Application for Petition for Zoning Map Amendment

Applicant Name: Quantum Properties Phone: 304-710-8577

Mailing Address (city, state, zip): 707 7th street west Huntington WV25704

Email: abell@rickwood.com

Current Zoning Classification: R-2 Residental

Proposed Zoning Classification: I-1 Light Industrial

The number of property owners in the area requested: 1

Description of Properties:

714 6th street west, 712 6th street west and 633 35 madison Ave
Address(es)

parcel 06-07-0042-0258-0000, 06-07-0042-0389-0000 and 06-07-0042-0245-0000
Legal description (district, tax map, parcel number(s), etc.)

Your application represents that such reclassification as herein requested would be a proper zoning classification and is consistent with the surrounding circumstances of the area concerned, and that the orderly development of the City of Huntington would be served by the rezoning herein proposed.

This application, requesting a petition for an amendment to the City of Huntington Zoning Ordinance and Official Zoning Map, shall be presented to the office of the Planning Commission duly signed by the owners of fifty percent (50%) or more of the real property area to which the application relates. (Attach additional pages if necessary.)

[signature]
Signature of Applicant

11/25/24
Date

**All applications to be submitted must be typed or legibly written in blue or black ink.*

Application for Petition for Zoning Map Amendment

ATTACHMENT A

In making its decision to approve or deny a Zoning Map Amendment request, the Planning Commission must consider the following. Please provide a written statement on how the proposed Zoning Map Amendment will affect each of the following considerations:

1. Is the proposed rezoning consistent with the comprehensive plan?
   YES

2. If not consistent, have there been major changes of an economic, physical or social nature within the area involved which were not anticipated when the comprehensive plan was adopted?
   N/A

3. If there have been major changes, have those changes substantially altered the basic characteristics of the area?
   N/A

4. How will the new zoning classification complement the existing uses and zoning nearby?
   THE EXTERIOR OF THE PROPERTIES WOULD REMAIN UNALTERED.

5. Do the current zoning restrictions / permissions diminish the property values of the properties proposed for rezoning?
   NO

6. How will the proposed rezoning benefit the public, including the public health, safety, and general welfare?
   ALTHOUGH THE PROPERTIES WOULD BE ZONED AS LIGHT INDUSTRIAL, EXTERNALLY THEY WOULD REMAIN THE SAME RESIDENTIAL PROPERTIES.

7. How is the current zoning a hardship to the property owner/s?
   WE WOULD LIKE TO UTILIZE THESE PROPERTIES AS OFFICE SPACE FOR OUR GROWING BUSINESS.

Application for Petition for Zoning Map Amendment

ATTACHMENT A Cont'd.

8. Explain how the subject properties are suitable for the proposed new zoning classification.
   WE PLAN TO UTILIZE THE BEDROOMS AND LIVING / DINING ROOMS AS OFFICE SPACE. ALL PROPERTIES ARE ADJACENT TO OUR PRODUCTION FACILITIES.
9. If the subject properties are vacant, how long have they been so?
   N/A

For more information see: http://www.cityofhuntington.com/i-want-to/learn-about/plan-2025 at p. 127 of the pdf for future land use portion of the current comprehensive plan. The Future Land Use Map is on p. 133 of the pdf. Other future plans at p. 137 of the pdf; look for Actions & Strategies that include your district.

ATTESTATION OF ASSENT

AFFIDAVIT OF Jerry A. Roseberry
(name of owner)

State of W V

County of Cabell

After first being duly sworn before me, the undersigned Notary Public, the said affiant avers and says:

1. I am the owner of property(ies) known and designated as 633 35 madison Ave 714 6th street west St./Ave.;
712 6th street west

2. I seek to amend the zoning classification of my property(ies) from R-2 Residental to I1 Light Industrial

3. I certify that I have read and examined the Application and Petition for Zoning Map Amendment and that the statements of fact contained therein are true; and

4. I hereby authorize Art Bell (lead petitioner) to represent this Petition on my behalf.

AND FURTHER THE AFFIANT SAITH NAUGHT.

Affiant and Co-Petitioner

Acknowledged before me this 25, day of November, 2024, by Amanda C Taylor.

My commission expires March 30, 2028.

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Amanda C. Taylor
114 Locust Street
Huntington, WV 25705
My Commission Expires March 30, 2028

PETITION AND ATTESTATION

633 35 madison Ave
714 6th street west
712 6th street west

I certify that I am the owner of record of _____ and I seek to amend the zoning classification of the property(ies) listed herein from R-2 Residental to I1 Light Industrial. I certify that I have read and examined this document and the attachments and say that all the information provided are correct and true to the best of my knowledge.

_____

(Applicant/Lead Petitioner to sign here)

AND FURTHER THE AFFIANT SAITH NAUGHT.

_____

Affiant

Acknowledged before me this 25, day of November, 2024, by Amanda C Taylor.

My commission expires March 30, 2028.

_____

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Amanda C. Taylor
114 Locust Street
Huntington, WV 25705
My Commission Expires March 30, 2028

Not Permitted	Conditional Use	Permitted by Right	
Use Type		**R-2**	**I-1**
Residential			
Single-Family Residential			
Single-Family Duplex			
Single-Family Attached Townhouse			
Multi-Family Dwelling Units			
Home Occupations			
Group Residential Facility			
Dormitory			
Assisted Living or Congregate Housing			
Halfway House			
Manufactured / Mobile Home Park			
Live / Work Unit			
Residential Flats Above			
Lodging			
Boarding House			
Hotel Inn			
Motel			
Civic / Community			
Cemetery			
Community Center			
Community Garden			
Cultural Institution			
Lodge, Private Club, or Social Hall			
Redevelopment of a Closed Church			
Religious Uses			
School			
School, Private			
Commercial			
Adult Use			
Animal Boarding and Training			
Auto Service Station and Repair Shop			
Automotive and Other Vehicle Sales			
Banquet Halls or Conference Centers			
Bar			
Bar Neighborhood			
Brewpub			
Carwash			
Commercial Greenhouse			
Commercial Recreational Facilities (Indoors)			
Commercial Recreational Facilities (Outdoors)			
Craft Production Facilities			
Day Care (Child or Adult)			
Drive-In or Drive-Thru			
Financial Institutions			

Use Types	R-4	C-1
Firearm Sales Establishments		
Flea Market		
Fuel Sales		
Funeral Home		
Hospital		
Laundromat		
Laundry and Dry-Cleaning Pick-up		
Laundry and Dry-Cleaning Services		
Limited Video Lottery/Keno Establishment		
Limited Video Lottery/Keno Incidental		
Manufacturing Sales, Artisan		
Medical Clinic		
Medical Office		
Nanobrewery		
Offices		
Offices for Charitable Organizations		
Pawnshop		
Personal Services		
Pet Store / Pet Services		
Radio and Television Stations		
Repair Shop		
Retail Sales and Services		
Retail Sales and Services, Neighborhood		
Restaurant		
Restaurant Service Alcoholic Beverages		
Self-Storage Development		
Self-Storage Indoors		
Shopping Center		
Smoke Shop / Tobacco Store		
Tattoo Parlor		
Trade or business School		
Industrial		
Crematories		
Distribution Facilities		
Fuel Storage		
Communications Network Facility, Headend or Hub		
Junk Yard or Salvage Centers		
Laboratory		
Landfill or Dump		
Manufacturing and Production (Heavy or Outdoors)		
Manufacturing and production (Indoors)		
Manufacturing and production with Hazardous Materials		
Outdoor Material and Bulk Supply Sales		
Recycling Collection Center		
Towing Services		

Transfer Stations for Solid Waste		
Light Warehousing		
Traditional Warehousing		
Heavy Warehousing		
Wholesale Business		

Monroe Avenue
Cabell County Tax District 7, Map 42
Parcels 256, 257, 258, 284, 285, 286, and 388
PC 25-01
A petition to rezone a portion of the 600 block of Monroe Avenue from R-2 Single Family Residential district to I-1 Light Industrial/Commericlal District

Monroe Avenue
Cabell County Tax District 7, Map 42
Parcels 256, 257, 258, 284, 285, 286, and 388
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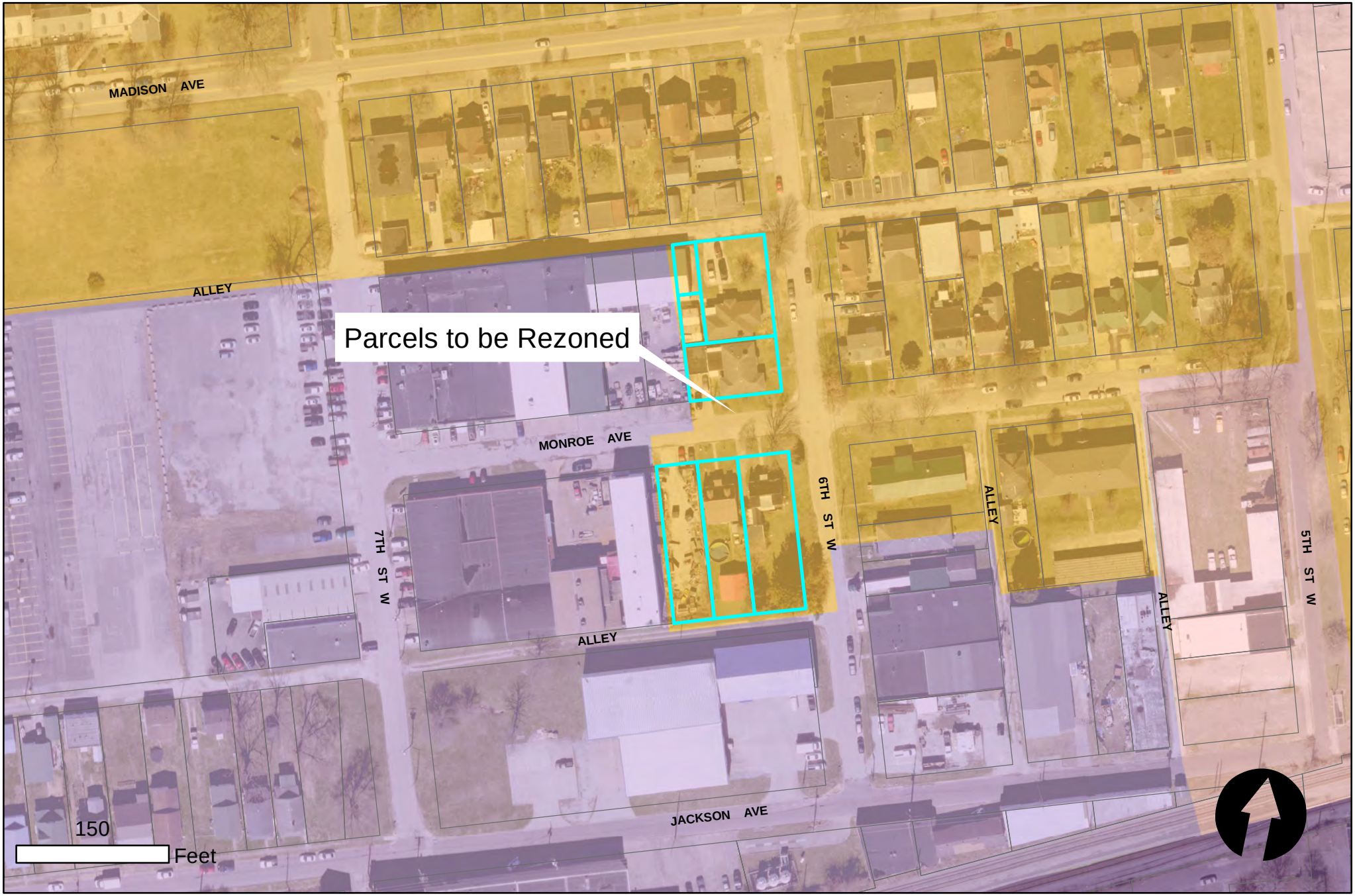

Monroe Avenue
Cabell County Tax District 7, Map 42
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