GENERAL CONSTRUCTION CONDITIONS

1. The term of owner as used in these specifications and notes shall include the owner of the property, the company or party that hired the contractor, the company or party that signed the contract for this work, and the agents of each. The owner's representative shall be the individual or party assigned by the owner to be the owner's representative.
2. The contractor shall be responsible for all temporary permits, connection permits, fees, inspections and record keeping required by all municipal, utility, health, environmental, state, or federal agencies that may have jurisdiction. Furthermore, the contractor shall be responsible to meet or exceed all requirements of the agencies or authorities having jurisdiction over his work. All conflicts in requirements of different agencies, authorities, and/or the design shall be brought to the attention of the owner's representative before proceeding.
3. The contractor shall be responsible to locate and maintain the property and project limits throughout the project. All conflicts between the design and the project/property limits shall be brought to the attention of the owner's representative before proceeding. Unless described in the contract documents or shown on the drawings the owner has not secured any right of ways, easements or agreements with other property owners or property users. Therefore, it shall be the contractor's responsibility to secure and maintain any temporary right of ways, easements, permits, or agreements he may need to perform his work. All such agreements shall hold the owner, engineer, and his agents harmless and the responsibility of the contractor to bear all costs. The contractor shall copy the owner on releases of all agreements prior to final payment by the owner to the contractor.
4. Unless otherwise noted on the drawings or in the contract documents the contractor shall be responsible for all construction survey, layout, and record drawings for this contract. Any conflicts in survey/layout and the design or agencies requirements shall be brought to the attention of the owner's representative prior to proceeding with the work. The contractor shall protect and safeguard all existing survey monuments, control and tie-downs. The contractor shall pay all costs to repair or replace damaged survey monuments, control and tie-downs.
5. No changes to the design or materials specified may be made without written authorization by the engineer or in the case of utilities or road work to be dedicated, the authority receiving dedication. At the end of the contract, the contractor shall provide to the owner a record set of drawing reflecting all changes made by the contractor during construction.
6. Erosion control is necessary whenever sediment, dust, erosion, or contaminated run-off may occur. The contractor shall be responsible to place and maintain whatever erosion control or run-off protection is required to protect his work, the work of others, the project, adjacent properties and the health and well being of the workers, public and surrounding natural resources. They shall be familiar with all federal, state and local requirements regarding erosion and run-off control.
7. The contractor shall be familiar with the project site and all adjacent pedestrian, traffic, and business uses. The contractor shall take whatever precautions and steps necessary to maintain safety and operation of these uses in accordance with federal, state, county, and local requirements. The contractor shall be responsible for costs and damages caused from his failure to take proper and adequate precautions. The contractor shall be familiar with all federal, state, and local requirements regarding these uses.
8. The contractor shall be responsible for costs and delays associated with weather, groundwater, and other occurrences that could be expected or are common with this type of work. The contractor shall review all pertinent documents including soils reports, soils borings, and other soil or site data.
9. The contractor shall be responsible to save and protect his work through out the contract. Any damages requiring repairs or replacement shall be corrected by the contractor at his expense.
10. When work is done within a road, utility or private easement, right of way, or other property agreement the contractor shall do all work within that area per the authority having jurisdiction.
11. When separate site and building contracts are performed the site contractor shall be responsible to bring utilities to within 5 feet of building face unless noted otherwise on drawings or contract documents.
12. All utilities are shown per surface surveys and/or record maps and may vary from actual in-field locations. The contractor is responsible for all utility stake outs and locating utilities prior to commencing work. Any damage to utilities due to improper stake out, lack of stake out or the failure to verify differences between drawings and actual field conditions will be the responsibility of the contractor to repair, replace, or pay damages at no expense to the contract.

DEMOLITION

1. The Contractor shall inspect all structures, facilities and areas slated for demolition to gain a full understanding of the work required. The contractor shall take whatever measures necessary to protect the safety of the public, his employees and agents during the inspections and subsequent work. The owner, client, and engineer are not responsible for the condition of the buildings, facilities, or other areas slated for demolition.
2. All materials not slated for reuse must be disposed of off site in a legal manner. The contractor may salvage all materials not designated by the owner to be saved. The contractor shall be responsible to remove and store safely all materials slated to be saved or reused. The contractor shall document existing conditions using photographs prior to start of work. The contractor shall be responsible for all costs to repair or replace materials damaged due to his work or failure to protect through out the duration of his contract.
3. The contractor shall be responsible to coordinate with all appropriate utility owners, operators and users prior to disconnection and demolition. All work shall be done in accordance with the authority having jurisdiction. All plugs, stops and caps shall be per agencies requirements and if none exist then a 3000 psi concrete plug with a thickness equal to the diameter of the pipe shall be used.
4. The contractor shall notify the owner immediately and stop all work in areas where hazardous materials are discovered. When required, the contractor shall notify the appropriate environmental and health agencies.
5. No burning, explosives, or other potentially dangerous methods of demotion will be allowed unless written permission is granted by the owner and all appropriate permits are granted.
6. The contractor will provide what ever safety equipment and devices are necessary to protect the adjacent properties, structures and other areas slated to remain. The contractor will be responsible for all costs to repair or replace any damage caused by his work. This will also include erosion control, dust control, and settlement.
7. All areas shall be brought back to their original grade or that of the surrounding area, which ever is closer to the final grades of the project for that area. All areas requiring fill shall be compacted to the requirements of the area but in no case less than 90% of modified proctor (ASTM D 1557).

CLEAR AND GRUB

1. The contractor shall review plans and identify and safely mark all plants and trees to be saved. The contractor shall protect all plants and trees to be saved throughout the contract. This shall include prohibiting any work within the drip line of the tree, except under the supervision of a licensed Landscape Architect.
2. All areas to be cleared and grubbed shall be surveyed in the field to establish the appropriate limits of work.
3. The contractor shall take whatever measures necessary to locate and protect existing utilities, structures, and other facilities to remain.
4. All trees, shrubs, stumps, roots, and other debris shall be removed from site and disposed of in a legal manner.
5. No burning will be allowed on site.

EROSION CONTROL

1. Prior to construction equipment entering or exiting the site, a construction entrance shall be built unless existing conditions prevent any tracking of dirt, mud, or debris off the site. The contractor will be responsible to keep all roads, parking lots, sidewalks and adjacent properties free of dirt, mud, or other debris. This will include building the construction entrance, sweeping, scraping, and washing the pavement surfaces whenever needed. The construction entrance shall be constructed as shown on the plans. If a detail is not provided, construct the entrance with clean 2 to 3 inch stone, 6 inches thick, over stabilizing fabric to the dimensions of 12 feet wide and 50 feet long. The entrance should be located so that all vehicles leaving the site will utilize it.
2. All erosion control devices shall be placed as shown on the drawings and in accordance with federal, state, local, and manufactures recommendations. The contractor shall place and maintain all erosion control devices as needed throughout the project.
3. Silt fence shall have hard wood stakes 2x2 inchs wide and 4 feet long, woven into the fabric. The base of the silt fence shall be excavated so as to provide an area to bury the bottom of the fabric at least 6 inches into the ground. The stakes shall be driven to a depth that will place the bottom fabric at the bottom of the trench. Then backfill the bottom fabric on the upstream side with the material that was excavated.
4. Silt fence shall be placed where ever surface drainage can leave the site.
5. Stone filters shall be placed in all drainage ways but not in streams, creeks or rivers. Stone filters shall consist of a uniform mix of 1/4 to 3/4 inch clean stone wrapped in filter fabric and covered with 4 inch stone.
6. Sediment traps shall be placed and maintained as needed. They shall be sized to provide adequate storage to allow sediment to precipitate out prior discharging down stream.
7. Temporary seeding shall consist of lime @ 1/2 ton per acre, fertilizer 5-10-10 @ 600 pounds per acre, Ryegrass (annual or perennial) @ 40 pounds per acre and straw mulch @ 2 ton per acre. Jute mesh shall be placed over mulch and staked whenever winds or slope will cause the mulch and seed to become depleted or eroded. Areas shall be temporary seeded when they are subject to erosion and will lie dormant for a month or more.

TRAFFIC SIGNAGE AND PAVEMENT MARKINGS

1. Pavement markings shall be the type, color, size, and locations shown on the plans. Contractor shall provide two (2) coats of paint for all pavement makrings. If the information on the plans is not complete and the authority having jurisdiction does not have requirements regarding this use the following. Paint shall be supplied in accordance with AASHTO: M 248 latest addition. Colors shall be as follows YELLOW- parking stalls, handicap parking and characters, parking islands and fire lanes) WHITE - stop bars, pedestrian crossings, traffic control lettering and characters and stop lettering).
2. The pavement shall be clean and free of dirt, dust, moisture, oils, and other foreign materials. Any old pavement markings shall be removed unless paints are compatible and overlay identically. The surface of the pavement prior application shall be 45 degrees F and rising unless manufacturer's recommendations are greater.
3. The signage shall be the type and at the location shown on the drawings. The signage shall be provided in accordance with the Local Highway, County Highway, and State Department of Transportation. If local, county or state codes do not exist use AASHTO: M268.
4. Posts, brackets, and frames shall be steel per ASTM A-36, A-242, A-441, A-572, A588, Grade 50, and hot dip galvanized in accordance with ASTM A123. All cutting, drilling, or other pole modifications shall be painted with galvanizing paint. All bolts, nuts, and washers shall be stainless steel.
5. Post holes shall be a minimum of four feet deep and 12 inches in diameter unless poor soils or frost conditions require greater depth. Sign posts shall be kept plumb, 6 inches off bottom and centered as 3000 psi concrete is placed around the post. The overall sign and post system should be able to withstand 33 pounds per square foot.
6. Contractor can place signs on posts after concrete has cured for seven days or 3/4 strength is achieved.
7. All handicap striping and signage shall meet Americans with Disabilities Act (ADA) requirements. Fire lane striping and signage shall meet the requirements of the local building inspector and fire department.

MONROE COUNTY DOT NOTES:
1. Monumentation must be checked by the M.C.D.E.S. Survey Office. If there are any survey monuments in the work area, a $1,500 security deposit and a survey report may be required to protect it. Contact M.C.D.E.S. Survey Office, phone (585) 753-7530.
2. Highway drainage along the County highway must be maintained. The applicant will be responsible for all required grading in the County right-of-way.
3. After MCDOT approves this project, a 136 Highway Permit and a 239F Permit will be required. Inspection of all construction in the right-of-way will be a condition of these permits.
4. All materials installed in the County right-of-way shall be in accordance with the MCDOT Standards and Details in effect when installed.

EARTHWORK

1. Prior to starting any cuts or fills the contractor shall strip and stockpile all topsoil. Stripping of topsoil can only commence after the clear and grub operations are complete and all erosion control devices are in place in that area. Topsoil shall be stockpiled in areas designated on the plans or approved by the owner's representative. The contractor shall review the soils reports, boring logs, and, when necessary, his own field verification so as to be familiar with the depth of topsoil. The contractor shall take all reasonable precautions to prevent over and under removal.
2. Unless otherwise noted, the grades shown on the plans are finished grades. Therefore, pavement, floors, subbase, and other improvements must be subtracted to calculate subgrade elevations.
3. The contractor shall maintain a survey grid of not less than 100' x 100' or other means acceptable to the owner's representative that will indicate location and amount of cut or fills remaining. At subgrade this grid shall be 50' x 50' with location and final grade marked clearly or survey shall be completed demonstrating that the subgrade is +/- 0.1 feet of required subgrade.
4. Unless otherwise noted on the drawings or in the contract documents, the contractor shall retain and pay all cost for soil compaction testing to be performed by an independent testing laboratory. For each lift placed, compaction testing shall be done every 2000 sq. ft. In trenches, compaction testing shall be done every other lift with at least 1 test every 50 LF.
5. Compaction requirements shall be those outlined in the soils report. If the soils report is not clear or does not give requirements the following will be used. Under and to 20 feet outside the building envelope the soils shall be compacted to a minimum of 95% maximum dry density per ASTM D 1557 (modified proctor). Under proposed or future pavement areas, including 10 feet outside such areas, the soil shall be compacted to a minimum of 93% maximum dry density per ASTM D 1557 (modified proctor). All landscape and lawn areas shall be compacted to 90% maximum dry density per ASTM D 1557 (modified proctor). The testing lab shall test soils in accordance with ASTM D 2922 (nuclear method) with proctors for each soil type.
6. Unless otherwise noted in the soils report or on the drawings, the on-site material shall be used to make fills. All material to be used for fill shall be free of organics, frozen material, contaminated material, debris, and any rocks larger than 4 inches. For fill placement within 1 foot of subgrade, no rock shall be greater than 2 inches in diameter. The contractor shall bear all cost associated with drying, segregating, or required methods to treat soils to meet compaction and other requirements.
7. Fills shall be placed in lifts not to exceed 8 inches in mass fills and 6 inches in trench or restricted areas.
8. If imported material is required, the source and a random composite sample shall be reviewed by the testing laboratory prior to being brought to site. The testing laboratory shall test for percent passing the 200 sieve that does not exceed the existing on site material or in no case greater than 10%. They shall also verify consistency with existing on site materials and all other requirements. Waivers to these requirements can only be given jointly by ALDI and the Geotechnical Engineer that prepared the soils report.
9. The testing lab may restrict some on site materials from being used as fill in building or pavement areas when it is their opinion that the material will not meet requirements stated here. If such conditions do exist and other material is not available on site, the owner's representative must authorize in writing the use of import material unless there will be no additional cost to the contract.
10. The contractor shall take all necessary precautions to protect earthwork operations from weather and ground water including keeping positive drainage, divert drainage, dewatering, and sealing disturbed areas with a steel drum roller prior to inclement weather.
11. Prior placement of fills, in areas where the final fill depth will be less than 4 feet, the area shall be proof rolled with a 20 ton roller or a loaded 10 wheel dump truck. Soft areas shall be scarified, dried, and re-compacted prior to fill being placed. Retest by proof roll as necessary.
12. All final subgrade under proposed pavement, building, or other structure shall be proof rolled as described above for the identifying of soft areas. Areas found to be unacceptable shall be scarified, dried, and re-compacted. Retest by proof roll as necessary.
13. Trench excavation requiring sheeting, shoring or other stabilizing devices shall be designed by a Professional Engineer and meet all O.S.H.A. requirements. All excavations shall maintain safe side slopes in accordance with local, state and O. S. H. A. requirements. No stocking of material close to an open cut or steep slope will be permitted in an effort to prevent cave-ins.
14. Trench excavations shall be made uniform and straight to the following widths: (for pipes 36 inches or less the trench width shall be the diameter plus 2 feet), (for pipes 36 inches or greater the width shall be the diameter plus 3 feet). Additional width will only be allowed when compaction equipment limitations require and only after approval of the Engineer of Record. No more trench shall be open in one day than can be properly backfilled in that same day to minimize weather and safety concerns. When backfilling around pipes, provide uniform support at invert and proper compaction under, along, and over the pipe. Care shall be given while backfilling around pipes to prevent damage to the pipes including: placing backfill/bedding by hand, using hand operated plate tamps or jumping jacks, and other load restrictive techniques until fills are a minimum of 2 feet or manufactures recommend depth, which ever is greater, above the top of the pipe. Compaction requirements are not relieved in these areas and will remain as stated on the drawings or above. If clean stone is used as a bedding or encasement, filter fabric shall be placed between the natural soils and backfill and the stone to prevent migration of fines.
15. If rock is encountered that was not indicated on the plans or soils report, the area for removal should be measured and reviewed with the owner's representative prior to rock removal. Rock will be defined as the natural earth materials that can not be removed with conventional earth working equipment.
16. Where rock is adjacent to a structure or utility, the rock shall be removed to a minimum of 6 inches below and 1 times the diameter, but not less than 1 foot or greater than 3 feet on any side.
17. No explosives will be allowed until all permits are granted and the owner has signed off. Pre and post blast reports must be kept and recorded. All structures within the area of the blast must receive a pre- blast survey. All blasting must be performed by a licensed blaster.
18. Unless otherwise noted on the drawings, the contractor shall remove all excess topsoil, cut material, or waste material from site and dispose of in a legal manner.

SANITARY SEWER SYSTEMS

NOTE: THE FOLLOWING NOTES ARE THE STANDARD APD NOTES AND MAY NOT REFLECT DOH REQUIREMENTS. THE DOH NOTES LISTED ON THIS SHEET, DETAILS, AND OTHER REQUIREMENT OF DOH SHALL GOVERN OVER THE NOTES BELOW.

1. The sanitary sewer system shall be supplied and placed inaccordance with all local, state and federal requirements. The local sanitary sewer authority for this project is the City of Rochester DPW.
2. All sanitary sewer material sizes, types, and specifics are listed on the drawings. If the plans do not list all information or are unclear use the following.
3. Whenever clean stone is used for bedding, backfill, or encasement, filter fabric shall be placed between the natural and backfill soils to prevent migration of fines into the voids, as necessary. Anti-seep collars shall also be incorporated at the project limit and along the pipe to prevent water flow within the stone bedding or encasement.
4. Unless otherwise noted, sanitary pipe and fittings shall be Polyvinyl Chloride (PVC) per ASTM D 3034, SDR 35, with gaskets per ASTM D 3212, elastomeric seal. The pipe shall be bed 6 inches below and up half its diameter with stone of a uniform mix of gravel or crushed stone 100% passing the 1.0" sieve and 10% to 3% passing the 200 sieve. The mix shall be supplemented as needed to remove voids. Incorporate filter fabric around bedding or cradle stone if ground water, silts, or sands are encountered.
5. Forcemain pipe shall be Polyvinyl Chloride (PVC) per ASTM D 2241, SDR 21or lower if pressures are high in system with gaskets per ASTM D 3139, and elastomeric seal. The pipe shall be encased in a run of crush stone or gravel material with 100% passing the 1.0" sieve and 10% to 3% passing the 200 sieve. The mix shall be supplemented as needed to remove voids. Incorporate filter fabric around bedding or cradle stone if ground water, silts, or sands are encountered.
6. Manholes shall be provided per ASTM C 478 with steel core polyethylene steps. Gaskets between risers shall be rubber per ASTM C 443 and mortared water tight with a waterproof/plug mortar. The invert shall be made with concrete or 1/2 round section of pipe. Pipe joints shall be a press wedge or cast in place boot. Both will have additional voids filled with waterproof/plug mortar. Adjustment rings shall be precast concrete 4000 psi and 5 to 8% air entrainment. Exterior manholes shall be coated with a seal coat acceptable to the authority having jurisdiction.
7. Cleanouts shall be made of the same pipe material as the carrier pipe. A cast iron frame and cover shall be provided for access at grade and designed for H-20 loading. The cleanout shall be encased in stone of the same type as the pipe bedding for the full depth of the cleanout. Cleanouts should be no more than 90 feet apart on laterals.
8. Manhole frames and covers shall be per ASTM A 48, Class 30B, fully coated with the lettering "SANITARY" cast into it. The minimum size will be a 24 inch inside opening and design for a minimum of H-20 loading.
9. All pipe shall be placed in accordance with the manufactures recommendation and to the lines and grades shown on the drawings. Care shall be given during backfill operations not to move or damage pipe or appurtenances while achieving the appropriate compaction requirements.
10. All systems shall be visually inspected for alignment and workmanship. All debris, dirt or other foreign objects shall be removed and the system flushed clean
11. All taps to main lines shall be made with saddles when the tap is 1/2 the diameter or less of the existing pipe, but made with a sleeve when the tap is greater than 1/2 the diameter or equal to the existing pipe. If connections are required to equal size pipes of 8 inches or greater, a manhole should be installed over the connection point and inverts formed. When connecting to an existing manhole the connecting pipe hole shall be cored and a press wedge installed. The connection shall be mortared up with waterproof/plug mortar. Inside the existing manhole, the existing invert shall be broke out in a manner that protects from debris entering the live system, while a new invert is formed.
12. Sanitary manholes shall be visually lamped after backfill to verify alignment, cleanliness and there is no damage to the system. After the system has been backfilled for 30 days, the system will be relamped and may be tested with a mandrel sized at 95% of the intended inside diameter.
13. Gravity systems shall be air tested between manholes to 3.5 psi for 5 minutes per ASTM F 1417 for plastic pipes.
14. Manholes shall be tested separately for leakage or infiltration using ASTM C 969. The allowed leakage = 0.1 gallons/[(feet of diameter)(feet of head)(* of hours)] and the test shall run for 24 hours.
15. When necessary to verify system integrity the entire system may be tested for infiltration and exfiltration using ASTM C 969. The system shall be broken up into sections when necessary to consider groundwater depth, length and elevation differences.
16. Failure of any testing shall require the contractor to repair or replaced the failed section at no additional expense to the contract.
17. After all testing is complete and before the system is turned over to the authority having jurisdiction the system shall be checked to verify it is clean and free of dirt, debris and other foreign matter. The contractor shall clean any sections requiring such at no additional expense to the contract. This shall include televising all main lines and visually inspecting the manholes.
18. Water stop or seepage collars shall be incorporated at project limit at all elevation changes of 1' unless specific locations are shown on plans.

ASPHALT PAVEMENT

1. Asphalt shall be the type or types specified on the drawings. If no type is indicated the contractor shall use a mix specified by the New York State Department of Transportation for top and binder. In New York State that would be type 3 binder and type 6 top. All asphalt shall be produced in state approved plants with state approved products.
2. Asphalt will only be placed when the outside temperature is 45 degrees F and rising. Asphalt will never be placed on frozen material, during medium or heavy precipitation or when preceding precipitation has saturated the subbase and/or subgrade.
3. Surfaces that will abut the new asphalt shall be tack coated prior placement of asphalt including curbs, gutter, existing asphalt and structures. Tack coat shall be applied neatly to match the lines and grades of the proposed abutting asphalt at a rate of .05 to .15 gallons per square yard.
4. Asphalt shall be placed in layers equal to those specified on the plans. Thickness of each layer or the thickness of all layers combined shall not vary more than 1/4 inch for thickness of 0 to 4 inches and 1/2 inch for thickness of 4 inches or greater, from those specified on the drawings. If more than 60% of test cores sampled fail to equal or exceed the required depth the pavement shall be considered failed and be subject to repairs, replacement or reasonable compensation of which the contractor will bear all costs. The asphalt shall also be tested for smoothness by laying a 16 foot straight edge on the pavement and verifying that there are no gaps greater than 1/4" in any direction.
5. Placement and compaction requirements shall be the same as those specified by the State Department of Transportation of which the project is located in. The rolling shall be done in such a manner that will match joints and leave a smooth uniform surface while providing the proper compaction which will be 95% of laboratory density.
6. When matching into existing pavement all match joints shall be saw cut to provide a straight smooth joint. The asphalt depth at the match point shall be equal to that of the proposed or existing which ever is greater.
7. Paving equipment shall be of good condition and quality. Asphalt shall be placed by mechanical equipment except in small areas that are inaccessible to a paver. Asphalt shall be transported in covered trucks and scheduled in such a manner that will maintain asphalt temperature. Asphalt shall be rejected when temperatures fall below 250 degrees F or the minimum temperatures specified by the State Department of Transportation.
8. All sub-base, asphalt, curb or other work performed in a State, County or Municipal right-of-way shall be furnished, installed, inspected and completed in accordance with their specifications, details and other requirements. The road connection for this project falls under the jurisdiction of the New York State Department of Transportation.

PUBLIC WATER SYSTEM NOTES (MCWA and DOH)

Water mains and appurtenances to be constructed in accordance with the regulations and specifications of the Monroe County Water Authority:

GENERAL:
1. Any changes to the approved plans and/or specifications shall require resubmittal and approval by the Monroe County Department of Health.
2. The proposed works not placed into operation until such a time as an Approval of Completed Works is issued in the accordancewith Part 5 of the New York State Sanitary Code.

MATERIAL:
1. Water main(s) shall be 8-inch ductile iron cement-lined Class 51.
2. Water service(s) shall be 6-inch ductile iron cement-lined Class 51 from the water main to the meter.
3. Water meter(s) shall be located on the interior of exterior wall(s) immediately upon service entrance into the building(s). On metered services requiring a 1-1/2 inch or larger meter by-pass around the meter is required.
4. All gate valves shall have stainless steel body and bonnet bolts.

TESTS:
1. Soil Test. The contractor shall provide a soil test evaluation to determine the need for polyethylene encasement per ANSI/AWWS C105/AZ1.5-82 prior to water main installation. Soil testing shall be conducted by an approved soil testing laboratory in accordance with Water Authority standards.
2. Pressure Test. Water mains to be pressure/leakage tested in accordance with the latest Water Authority specifications OR the minimum requirements of the AWWA Standard C600 (latest revision), whichever is more stringent. A water authority representative must witness this test.
3. Health Sample. The water main shall be disinfected equal to AWWA Standard Specifications, designation C-651, by using the continuous feed method. Following disinfection, the watermain shall be flushed until the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the system. The sampling point(s) must be decontaminated by flaming. After flushing and disinfecting the water main, water samples shall be collected from the main by the Monroe County Health Department. Fire hydrants are not acceptable sampling points. The Monroe County Department of Health must receive at least 48-hour advance notification requesting sampling services. Sampling will not be performed prior to receipt from a New York State licensed or registered design professional (engineer, architect or land surveyor with a special exemption under Section 7208(n) of the Educational Law) certifying that the water supply improvements, testing and disinfection procedures were completed in accordance with teh approved plans, reports, specifications and any approved ammendments. The Department will collect samples for free chlorine residual, total and fecal coliform, Escherichia coli (E. coli), turbidity, and 24-hour bacterial place count. Approval and notification by the Health Department must be received before the main is placed in service.

INSTALLATION:
1. Water mains and all water service lines shall have a minimum of five feet of cover from finished grade in lawn areas and a minimum of six feet of cover from finished grade in paved areas.
2. Minimum vertical separation between water main and sewer mains shall be 18 inches measured from the outside of the pipes at the point of crossing. Minimum horizontal separation between water mains and sewer mains (including manholes and vaults) shall be ten feet measured from the outside of the pipes. One full length of water main shall be centered under or over the sewer so that both joints will be as far from the sewer as possible. Where a water main crosses under a sewer, adequate structural support (compacted selected fill) shall be provided for the sewers to prevent excessive deflection of joints and settling on and breaking the water mains.
3. Fire hydrant weep holes (drains) shall be plugged when ground water is encountered within seven feet of the finished grade.
4. All mechanical joint fittings (tees, bends, plugs, etc.) shall be backed with 2500 psi concrete thrust blocks.

PUBLIC WATER SERVICE LINE NOTES (MCWA)
1. Water service lines (laterals) shall be constructed in accordance with the regulations and specifications of the Monroe County Water Authority.
2. Water service lines shall have a minimum of five feet of cover from the finished grade in lawn areas and six feet of cover from finished grade in paved areas.
3. Water service lines shall be separated at least ten feet, measured from the outside of the pipes, from sewer mains or septic systems.
4. Water services lines shall be identified as:

LATERAL IDENTIFICATION	SIZE	MATERIAL(a)	TYPE(b)
MCWA Portion = from the water main to and including the control valve	6"	D.I.P.	CMB
PRIVATE Portion = from the control valve to the meter	6"	D.I.P.	CMB

(a) Acceptable materials is *Class 51 cement mortar lined Ductile Iron Pipe.
(b) Service Types include: Domestic = DS, Fire = FS, or Combined = CMB

5. The MCWA portion of the water service line shall be installed prior to the private portion of the service line.
6. Water meter(s) to be located on the interior of exterior wall(s) immediately upon service entrance into the building(s). Residential Services: A by-pass assembly is not required around the installation of 5/8-inch through 2-inch meters. Non-residential Services: The installation of an 1-inch meter or larger requires a by-pass assembly around the meter.
7. Water service lines sized 4-inches or greater shall be:
   - Pressure tested in accordance with the latest specifications of the Monroe County Water Authority. A Water Authority representative must witness this test.
   - Disinfected by using the continuous feed method according to AWWA Standard Specifications. After flushing and disinfecting the service line, water samples shall be collected by the Monroe County Department of Health. Approval and notification by the Health Department must be received before the lateral is placed in service.

WATER SYSTEMS AND SERVICES

NOTE: THE FOLLOWING NOTES ARE THE STANDARD APD NOTES AND MAY NOT REFLECT MCWA REQUIREMENTS. THE MCWA NOTES LISTED ABOVE, DETAILS, AND OTHER REQUIREMENT OF MCWA OR THE HEALTH DEPARTMENT SHALL GOVERN OVER THE NOTES BELOW.

1. The water systems and services shall be supplied and placed inaccordance with all local, state and federal requirements. The local water authority for this project is the Monroe County Water Authority.
2. If the authority having jurisdiction does not have specific requirements regarding materials and placement the following will be used.
3. All water piping, fittings and appurtenances shall be placed a minimum of 6 inches below frostline or 5 feet which ever is greater. Pipe sizes 4 inches and up shall be ductile iron or polyvinyl chloride as indicated on the drawings (if not shown use ductile iron). Pipe sizes below 4 inches shall be copper or polyethylene as indicated on the drawings (if not shown use copper).
4. The minimum separation between water services and sewer lines shall be 18 inches measured vertically from outside to outside of pipe at the crossing. A standard length of water pipe shall be center at the crossing to maximize the distance between the crossing and the nearest water service pipe joint. When the water service runs under the sewer line, a gravel or crush stone backfill meeting the requirements of subbase shall be placed and compacted around the water pipe up half the diameter of the sewer pipe to provide adequate support to the sewer line. Water services and sewer lines running parallel shall have a minimum separation of 10 feet measured from outside of pipe to outside of pipe.
5. Ductile iron pipe shall be provided inaccordance with AWWA C151, (6 inch diameter and greater shall be class 50) and (6 inches and smaller shall be class 51). Ductile iron pipe shall be lined with a cement mortar and seal coated in accordance with AWWA C104. Gaskets shall be provided inaccordance with AWWA C111. Fittings shall be ductile iron inaccordance with AWWA C153 compact fittings with a pressure rating of 350 psi.
6. Standard ductile iron or cast iron fittings shall be supplied inaccordance with AWWA C110 with a pressure rating of 250 psi. The lining and gaskets for the fitting shall meet the same requirements as the pipe. Plastic wrap pipes inaccordance with AWWA C105 and tar coat all fitting bolts when ever soils are primarily clay or not pH balanced. See soils report for soils type and recommendations.
7. PVC (Polyvinyl Chloride) pipe shall be furnished inaccordance with AWWA C900 for pipe 4 inches or greater and ASTM D 1785, schedule 40, gaskets per ASTM F 477- elastomeric seal, solvent cement per ASTM D 2564 for pipes smaller than 4 inches. Ten gauge copper tracer wire shall be placed with all pipe.
8. Thrust restraints shall be used at all fittings, plugs and appurtenances that cause a change in direction, flow or are subject to thrust or hammering by water flow. Thrust restrains will include concrete thrust blocks (3000 psi), anchoring joints and tie rods. Concrete thrust blocks shall be used unless space, access or maintenance restrains prohibit their use.
9. Copper water pipe shall be supplied inaccordance with ASTM B 88- type K, seamless with fittings per AWWA C800.
10. PE (Polyethylene) pipe shall be furnished inaccordance with AWWA C901 and ASTM D2737. Ten gauge copper tracer wire will be placed with all pipes.
11. Gate Valves shall be nonrising stem, double disc, bronze disc Resilient seated, cast iron or ductile iron body and bonnet in accordance with AWWA C509 and pressure rated for 250 psi. Ten gauge copper tracer wire will be placed with all pipes.
12. Valve box shall be cast iron with a base compatible with valve, 5 inches in diameter, screw type extension at top and a cover that reads "WATER" .
13. Curb stops shall have a bronze body, ground key plug or ball with wide tee head. The curb stop shall be compatible with adjoining pipes. The service box shall have a telescoping top section with a length that will place the adjustment centered when buried to the appropriate depth. The service box shall be of a size and type that is compatible with the curb stop. The cover shall have the lettering "WATER".
14. All meters, vaults and backflow shall meet the requirements of the health department and other agencies having jurisdiction.
15. Fire hydrants shall conform to the requirements of the local water authority, fire department and AWWA C502. Drain stone shall have 100% passing the 1 1/2 inch sieve, 90 - 100% passing the 1 inch sieve, 35 - 95% passing the 1/2 inch sieve and 0 - 15% passing the 3/8 inch sieve. All hydrants will include a gate valve and box located at the hydrant branch to shut off the hydrant line.
16. Ductile iron pipe shall be installed inaccordance with AWWA C600 and be encased in select backfill which will mean no stone other material greater than 2 inches in any direction.
17. PVC, PE, and copper pipe shall be placed per manufactures recommendations and embedded in a 6 inch sand encasement measured from outside surface of the pipe to the outside of sand encasement. Sand shall meet the requirements of ASTM C33- Fine Aggregate.
18. All bedding and encasements shall be compacted with care to achieve proper compaction without damaging the pipe, fittings, or appurtenances.
19. All water mains fittings and valves shall be tested for pressure and leakage inaccordance with AWWA C600. Test water shall be potable. Test pressures shall not be less than 1.25 times the working pressure at the highest point and 1.5 times the working pressure at the testing point. The pressure may not drop more than 5 psi during the 2 hour test. Leakage will not exceed more than (L=[SD(P)1/2] /133,200) where "L = allowable leakage, in gallons per hour" "S= length of pipe tested, in feet" " D= nominal diameter of pipe, in inches" "P= average test pressure during test, in pounds per square inch (gauge) during the same 2 hour duration.
20. All tap and/or connection material and work shall be done in accordance with and coordinated with the local Water Authority and Health Department. When the Authority so requires, the taps and/or connections shall be done by the Authority themselves and paid for by the contractor.
21. Other fitting and appurtenances not part of the main line testing shall be tested by visual inspection for leakage under normal working pressures.
22. All main lines and appropriate appurtenances shall be flushed and disinfected in accordance with AWWA C651 and the requirements of the appropriate health department.
23. The contractor will coordinate all testing and disinfecting with the water authority and health department. If Professional Engineer certification is required the contractor shall notify the owner's representative at least ten days prior to the start of work.
24. Failure of any testing shall require the contractor to repair or replaced the failed section at no additional expense to the contract.

STORM WATER SYSTEM

1. The storm water system shall be supplied and placed inaccordance with all local, state and federal requirements. The local storm water authority for this project is the City of Rochester (MS4).
2. Storm design includes many variables, such as pipe roughness coefficient, that can affect the actual final run-off. If no alternative materials are listed on the utility drawings no substitutions may be made by the contractor unless first reviewed and accepted by the engineer.
3. All storm material sizes, types and specifics are listed on the drawings. If the plans do not list all information or are unclear use the following.
4. Whenever clean stone is used for bedding, backfill or encasement filter fabric shall be placed between the natural and backfill soils to prevent migration of fines into the voids, as necessary. Anti-seep collars shall also be incorporated at the project limit and along the pipe to prevent water flow within the stone bedding or encasement. Anti-seep collars may not be required when using perforated pipe.
5. Storm pipe 12 inches and up shall be corrugated polyethylene pipe (CPP) with smooth interior, in accordance with AASHTO M252 & M294 and ASTM F405 & F667, with a manning friction number (n) of 0.012 or less. Unless soils are consistently sand or sand and gravel with not more than 15% or less than 5% passing the 200 sieve and 100% passing the 2 inch sieve the pipe will be encased in a uniform gravel with not more than 15% or less than 5% passing the 200 sieve and 100% passing the 2 inch sieve from six inches below to six inches above the outside of pipe. Install in accordance with ASTM F449 and the manufactures recommendations.
6. Storm pipe below 12 inches shall be Polyvinyl Chloride (PVC) per ASTM D 3034, SDR 35 with gaskets per ASTM D 3212, elastomeric seal. The pipe shall be bed 6 inches below and up half its diameter with a uniform mix of gravel or crush stone 100% passing the 1.5" sieve and 10% to 3% passing the 200 sieve. The mix shall be supplemented as needed to remove voids. Incorporate filter fabric around bedding or cradle stone if ground water, silts, or sands are encountered.
7. End sections shall be the same material as the preceding pipe and appropriate collar.
8. Manholes shall be provided per ASTM C 478 with steel core polyethylene steps. The manhole shall be sized to a minimum of 2 foot greater than the largest diameter pipe entering or existing. Increase size of manhole if in the same horizontal plane there is two areas where the area between two pipes is less than 8 inches or halve or the circumference is supported by less than 1/2 of the diameter of the manhole. Inverts shall be smooth cast in place concrete. Unless otherwise indicated, 4 inch weeps cover with filter fabric and 2 inch stone shall be provided at the crown of pipes and at subgrade elevation. Gaskets between risers shall be rubber per ASTM C 443. Adjustment rings shall be precast concrete 4000 psi and 5 to 8% air entrainment.
9. Inlets shall meet the same requirements as those listed for manholes.
10. Grates shall be reticuline and galvanized per ASTM A123. Minimum grate opening size will be 24 inches x 24 inches and design for a minimum of H-20 loading.
11. Manhole frames and covers shall be per ASTM A 48, Class 30B, fully coated with the lettering "STORM" cast into it. The minimum size will be a 24 inch inside opening and design for a minimum of H-20 loading.
12. Cleanouts shall be made of the same pipe material as the carrier pipe. A cast iron frame and cover shall be provided for access at grade and designed for H-20 loading. The cleanout shall be encased in stone of the same type as the pipe bedding for the full depth of the cleanout
13. Dry wells shall meet the same requirements as those listed for manholes with the addition of openings of approximately 15% of the rings interior surface. The openings shall be 1 x 3 inch slots or 1 inch diameter on the inside surface. Dry wells shall be backfilled with a minimum of 1 foot of clean stone sized between 3 and 4 inches. Outside the stone the entire structure shall be wrapped in filter fabric to prevent outside soils from entering the stone and dry well.
14. Unless otherwise noted, trench drains shall be made with 4 inch perforated corrugated polyethylene pipe encased in clean stone sized between 2 inch and 1/4 inch and then wrapped in filter fabric. Outside dimensions of the trench drain will not be less than 1 foot.
15. All joints between pipes and precast structures shall be mortared tight.
16. All pipe shall be placed in accordance with the manufactures recommendation and to the lines and grades shown on the drawings. Care shall be given during backfill operations not to move or damage pipe or appurtenances while achieving the appropriate compaction requirements.
17. All systems shall be visually inspected for alignment and workmanship. All debris, dirt or other foreign objects shall be removed and the system flushed clean.
18. Any pipes found with diameter deflections greater than 5% of the specified pipe diameter will be repaired or replaced. Any alignment differentials greater than 5% of the diameter of the pipe will be corrected or replaced.
19. Any cleaning, repairs, or replacement required due to failure of testing or poor workmanship shall be done by the contractor at no additional expense to the contract.

PAVEMENT AND STRUCTURAL SUBBASE

1. The type of subbase required for each use shall be called out on the drawings. If no reference is made on the drawings or details to the type of subbase required the following shall be used. The source of the material shall be one approved for use by the New York State Department of Transportation. The material shall be a crushed stone conforming to AASHTO M 147-65 (1980 or latest revision), grade A. Gravel or other materials can only be substituted for crushed stone when approved in writing by the Owner and Engineer. Material supplied for use as subbase shall have 100% passing the 2 inch sieve, 30% to 65% passing the 3/8 inch sieve, 25% to 55% passing the No. 4 sieve, 15% to 40% passing the No. 40 sieve and 2% to 10% passing the No. 200 sieve.
2. Subbase shall be placed in lifts not to exceed 12 inches and compacted to the requirements stated in the soils report. If not stated the compaction requirement shall be 95% of maximum dry density per ASTM D1557 (modified proctor).
3. Final grading of subbase shall be to +/- 1 inch of that designated on the drawings and +/- 1 inch of the required thickness for thickness of 8 inches or greater and +/- 1/2 inch for thickness less than 8 inches.
4. The contractor will be responsible for all costs in preparing the subgrade to receive subbase. This shall include fine grading and compacting as necessary to meet the requirements stated here and under Earthwork.
5. The amount of testing required to verify the compaction shall be the same as stated under Earthwork.
6. Stabilizing fabric, if required, shall meet the following requirements "modulus (load at 10% elongation) =115lb per ASTM D1682-64", "Grab tensile strength 200lb per ASTM D 1682-64", "mullen burst strength = 400psi per ASTM D 3786-87", "trapezoid tear strength when applicable = 115lb per ASTM D1117-80", "coefficient of permeability K CM/SEC = .015 per ASTM D 4491-85", "water flow rate GPM/SF= 60 per ASTM D 4491-85". When stabilization fabric is used it shall be pulled tight and all wrinkles removed. Overlaps shall be in accordance with manufacturer's recommendations.
7. Filter fabric, if required, shall meet the following requirements "grab tensile elongation =50% per ASTM D1682-64", "Grab tensile strength 70lb per ASTM D 1682-64", "mullen burst strength = 200psi per ASTM D 3786-87", "trapezoid tear strength when applicable = 35lb per ASTM D1117-80", "coefficient of permeability K CM/SEC = .2 per ASTM D 4491-85", "water flow rate GPM/SF= 180 per ASTM D 4491-85". When filter fabric is used it shall be pulled tight and all wrinkles removed. Overlaps shall be in accordance with manufacturer's recommendations.

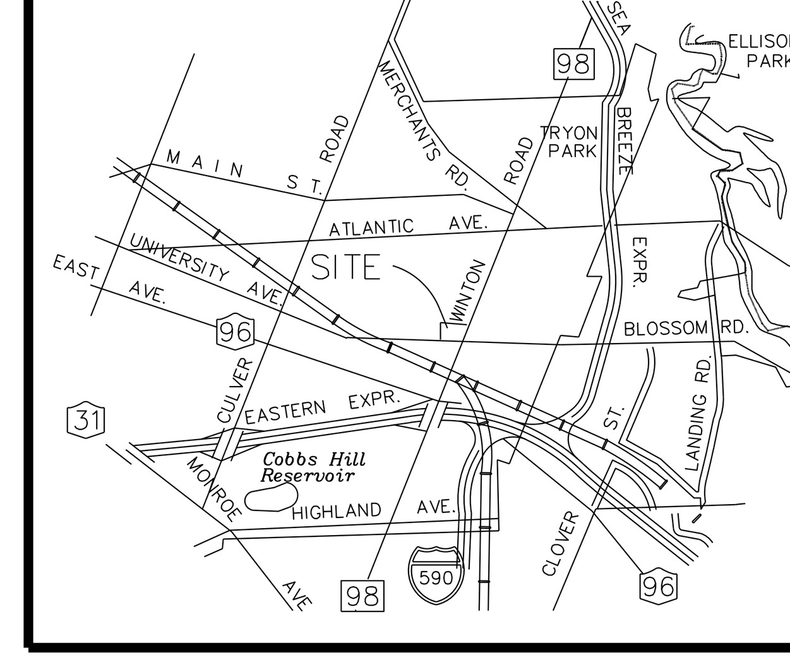
SITE CONCRETE - INCLUDING CURB, SIDEWALKS AND GUTTERS

1. The dimensions shall be those shown on the drawings. The Concrete mix shall be 4000 psi at 28 days made with type I or type II cement per ASTM C 150 and aggregates meeting State Department of Transportation requirements. Slump for slip forming shall be 1 inch +/- 1/2 inch and for formed concrete the slump shall be 3 inch +/- 1 inch. Air entraining mixture shall meet the requirements of ASTM C 260 4% +/- 1 1/2% for slip form work and 6% +/- 1 1/2% for formed and placed concrete. Water reducing agent shall conform to ASTM C 494, type A. Curing compounds shall conform with ASTM C309, type I, class A moisture loss of not more than .055 gr/sq cm when applied at 200 sq ft per gallon.
2. Sidewalks, gutters and curbs shall be placed on compacted subbase consistent with the pavement subbase as shown on the drawings. When subbase details are missing and no agency has jurisdiction use the following: sidewalks and gutters shall be placed on a minimum of 6 inches of compacted subbase and curbs shall be placed on a minimum of 4 inches of compacted subbase.
3. All forming, placement, materials and curing shall conform to the latest addition of ACI 318 "Building code requirements for reinforced concrete" and all similar State Department of Transportation requirements.
4. Reinforcing shall be in accordance with that specified on the drawings and the Concrete Reinforcing Steel Institute (CRSI) "manual of standard practices". Reinforcing steel shall be ASTM A 615, grade 60, deformed. Welded wire fabric shall be ASTM A 185, welded wire steel fabric.
5. Sidewalks, and gutters shall have a broom finish perpendicular to flow with a picture frame edge joint all the way around. Curbs shall have a smooth finish or light rub finish but consistent through out the project.
6. Expansion joints shall be placed every 50 feet and at adjoining structures such as walls, manholes and vaults. Expansion joint material shall be premolded, 1/2 inch material with 23/64 inch cap inaccordance with ASTM D1751. After concrete has set the cap should be removed and void filled with waterproof joint filler. Curb and gutter shall be cut or tool jointed to 1/3 the depth every 10 feet. Sidewalks should have tooled or cut joints to 1/3 the depth in squares or as close to square as possible not exceeding 5ft x5ft.

SEEDING AND LANDSCAPING

1. Topsoil shall be removed from stockpiles and spread in the areas shown on the plans. The depth of topsoil shall be as shown on the plans. If the depth of topsoil is not given the following shall be used: "a minimum of 4 inches in lawn areas" and " a minimum of 12 inches in landscape planting areas". If enough topsoil is not available onsite, the contractor is required to import as necessary.
2. After the topsoil is in place it shall be fine graded removing all roots, sticks, stones, and debris greater than 2 inches in any dimension. The topsoil shall be fine graded to the lines and grades shown on the plans.
3. The topsoil shall have a pH of 6.0 to 6.8 and a organic content of 3 to 20%. The gradation of the topsoil shall be 100% passing 2 inch sieve, 85 to 100% passing the 1 inch sieve, 65 to 100% passing the 1/4 inch sieve and 20 to 80% passing the No. 200 sieve.
4. Lime of type recommended for soil conditioning shall be used to treat acidic soils.
5. Lawn fertilizer shall be 55% nitrogen, 10% phosphorus and 10% potash where 50% of the nitrogen is derived from ureaform source.
6. Lawn seed when not given on the plans shall be "50% by weight, 85% purity, 85% germination of Pennfine Perennial Rye", "30% by weight, 97% purity, 85% germination of Pennlawn Red Fescue", "20% by weight, 85% purity, 80% germination of Common Kentucky Bluegrass".
7. When placing by hydroseeding application, fertilizer shall be placed at 80 pounds per acre, hydromulch at 1,200 pounds per acre, water at 500 gallons per acre, and seed at a minimum of 220 pounds per acre.
8. If placing by mechanical means fertilizer shall be placed at 25 pounds per 1,000 square feet, seed at 5 pounds per 1,000 square feet and straw mulch at 2 tons per acre. Place fertilizer and seed then lightly rake and roll with 200 pound roller. Mulch the area then water. Straw may need to be secure to prevent it blowing away.
9. Water lawn areas as needed to promote growth. The contractor will be responsible to water, reseed or what ever work necessary to insure the growth of the lawn until a complete and uniform stand of grass has grown and been cut at least twice.
10. Plantings shall be supplied in accordance with the plans and ANSI 260.1 "American Standard for Nursery Stock" in good health, vigorous, and free of insects, larvae, eggs, defects and disease.
11. Planting beds shall be prepared by loosening the top 1 foot of topsoil. Plants shall be located per the plans. The holes shall be excavated per the details on the drawings with the center slightly higher to promote drainage. Use a topsoil backfill mix of 4 parts topsoil, 1 part peat moss, 10 pounds 5-10-5 planting fertilizer properly mixed per cubic yard. Berm around plants to form a bowl shape.
12. Two layers of weed barrier made from fiberglass and ultraviolet light resistant shall be placed under all planting beds prior to mulching.
13. All trees and shrubs shall be staked as detailed on the drawings. Tree wrapping will be provided at the base of all trees as detailed.
14. Mulch shall be 50% shredded bark and 50% wood chips, 3/4 to 2 inch in size, uniformly mixed and free of elm wood. Mulch shall be placed uniformly over the planting bed allowing no weed barrier to be seen.
15. All landscaping shall be guaranteed for one year after final acceptance. Any plantings needing replacement will be guaranteed from the time of replacement if after final acceptance.
16. All disturbed areas are to receive four inches of topsoil, seed, mulching, and water until a healthy stand of grass is established.

CITY OF ROCHESTER



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