		SITE WORK GENERAL NOTES AND SPECIFICATIONS	۷۱.	SAN I	TARY SEWER CONSTRUCTION Current Fall Creek Regio
		AL CONDITIONS		А.	State specifications sha construction.
		The Contractor shall be responsible for obtaining, or verifying that all permits and approvals are obtained from the respective city, county and state agencies prior to starting construction.		В.	The Contractor shall be permits for all or porti construction. Contracto
	в.	It shall be the Contractor's responsibility to determine the exact location of all existing utilities in the vicinity of the construction area prior to starting construction.			48 hours prior to commen
	с.	It shall be the Contractor's responsibility for notification and coordination of all construction with the respective utility companies.		с. D.	Sanitary sewers shall be Department of Environmen Sanitary sewers shown on
	D.	It shall be the responsibility of the developer and Contractor to maintain quality control throughout the project; failure to do so may result in removal and replacement of the defective work. It is required that the Contractor have a qualified Superintendent on the		Ε.	Truss Pipe, where applic (8"-15" pipe and fitting D-3034 (S.D.R. 35) pipe. All fittings and joints
	Ε.	job site at all times during construction.		_	and installed in accorde specifications.
		project shall be installed according to these specifications. The Engineer will be required to certify to certain portions of this project upon completion. Therefore, it is necessary to obtain approval and acceptance by the town that construction was done in		F. G.	Sanitary manholes shall A.S.T.M. C-478, includir Castings shall be of typ
	F.	compliance with these plans and specifications.		н.	Table. Solvent welded tapping s
		Testing and Materials standards. The latest revision of listed A.S.T.M. standards shall prevail. The designation I.D.O.H. shall refer to the Indiana Department of		١.	connections. Water and sewer line cro accordance with Ten Sta
	G.	Highways Standard Specifications dated 1988 and all subsequent revisions.			1. Where water lines cannot be placed al minimum cover of 4
11.	CLEA	RING AND GRUBBING			waterworks grade c
	Α.	Clearing and grubbing shall consist of cutting, removal and satisfactory disposal of all trees, down timber, brush, projecting roots, stumps, rubbish, boulders, broken concrete, fencing (as designated), and other material on the project site and within the			2. Where water lines one another, a min maintained.
		boundary as shown on the Construction Documents and/or as designated by "construction limits". Special care shall be taken to insure that trees to be left		J.	All future sewer instal this system, shall be c specifications.
	В.	remaining in the project area shall not receive fills, bark of foot injuries. When such injuries occur, all rough edges of scarred areas shall be removed in accordance with accepted horticultural practice and the scars coated thoroughly with an asphaltum base		к.	No roof drains, footing connected to the sanita connection during const
	c.	All "unsuitable material" from clearing operations stated in Item II-A shall be removed to disposal area(s) off of the project site; materials shall not be disposed of by burning.		L.	Buildings shall be serv The sewer lateral's ter with a metal fence post point. The ends shall clay or plastic disc.
	TREE	REMOVAL AND PROTECTION			the horizontal, with su direction.
	Α.	Trees shall be removed from the project site only where the area is to be occupied by road and surfaced areas in accordance with specifications of the Town of Pendleton		м.	The Contractor shall pr and information for all after completion.
	В.	Trees shall be removed from the project site as directed by the Owner, and so designated.		Ν.	Concrete riser sections gaskets which meet A.S.
	с.	Trees shall be removed from the project site where they interfere with the placement of storm or sanitary sewers.		0.	Manhole waterstops sha manholes, where flexib
	D.	The Contractor shall endeavor to save and protect trees of value and worth which do not impair construction of improvements as designated. In the event cut or fill exceeds 0.5 foot over the root area, the Owner shall be consulted with respect to protective		Ρ.	All precast manholes st shown in the Details. with vibratory tamps.
	-	measures to be taken, if any, to preserve such trees. The Contractor shall be responsible for determining the method for		0.	The Contractor shall ro any water which may ac
	Ε.	The confidence and the bold of the state of		R.	The Contractor shall be infiltration and deflee Waste and the Indiana portions not passing s replaced at the Contra backfill. All testing for certification with
	F.	See Note II-B.		s.	Pipe shall be laid in
۱۷.	STR A.	The Contractor shall verify that all topsoil has been removed in			and the appropriate ap tunneling or jacking o
		the areas to be occupied by road, walks and designated ballang areas. Topsoil shall be removed to a depth of 6 inches or deeper, if necessary, to remove vegetative matter where required.		т.	Trench shall be opened obstructions, and shal when left unattended.
	в.	Topsoil shall be kept separated from suitable fill materials and shall not be used as fill under pavement and/or building areas.		U.	trenches as necessary All trenching shall be
	С.	Topsoil shall be stored at a location where it does not interfere with construction operations. Excess topsoil shall be removed from the site. Topsoil storage areas shall be approved in writing by		v	to protect workmen. Manhole inverts shall

D. Topsoil shall be reasonably free from subsoil debris and stones.

GRADING ٧.

the Owner.

- The Contractor shall perform all grading operations to bring subgrades, after final compaction, to the required grades and sections for site improvement.
- B. Subgrade shall be proofrolled with suitable equipment and all spongy and otherwise unsuitable material shall be removed and replaced with suitable material.
- Subgrade for streets shall be prepared in compliance with Town of Pendleton Specification, for all areas of street construction. Subgrade shall be compacted to 100% of standard proctor in the upper 6" of depth. Depths of embankment below the upper 6" shall be compacted to 95% of standard proctor.
- D. See PAVEMENT CONSTRUCTION
- E. All fill material shall be formed from soil free of deleterious material. Prior to placement of fill, a sample of the proposed fill material should be submitted to the soils engineer for his approval. The fill material should be placed in layers not to exceed eight (8") inches in loose thickness and should be spread and dried to a moisture content which will permit proper compaction.
- F. All fill material in areas outside of building and pavement areas shall be compacted lightly and protected from erosion. Areas of building construction shall not have unsuitable material placed in that location, and fill shall be compacted in accordance with the Soils Engineer's report (minimum of 95% standard proctor). These areas shall be determined by the developer's representative.

anal Waste District, County and all prevail as to materials and methods of

responsible for obtaining or verifying all ons of this project prior to starting or shall notify the Fall Creek Regional Waste ncement of sanitary construction.

installed in accordance with the Indiana ntal Management requirements.

the construction plans shall be A.B.S. cable, in accordance with A.S.T.M. D-2680 as), D-2751 (6" pipe and fittings), or PVC-ASTM

shall be premolded type and manufactured ance with the pipe manufacturer's

be precast concrete in accordance with ng concrete adjusting rings.

pe and kind as shown on the Structure Data

saddles shall be used for lateral

ossings and separations shall be in ites Standards and local codes.

and sewer lines cross and the water line bove the sewer line a minimum of 18" with a 8", the sewer line shall be constructed of cast iron pipe with mechanical joints.

and sanitary sewer lines run parallel with imum of 10' horizontal separation shall be

lation, either connected to or extended from constructed in accordance with these

drains, and/or surface water drains may be ary sewer system, including a temporary ruction.

riced by a 6" minimum sanitary sewer lateral. mination shall be indicated on the surface set immediately above said termination be plugged and sealed with a water tight Wyes are to be tiled up to 45 degrees from litable fittings for all changes in

rovide the Engineer with "as-built" locations sanitary sewer laterals within ten days

s shall have either "0" rings or rubber type .T.M. C-433.

II be installed at all connections to le-type manhole connections are not used.

hall be bedded on a granular foundation as The granular foundation shall be compacted

emove by pumping or other suitable methods cumulate in trenches.

e responsible for all tests for leakage, ection as established by Fall Creek Regional Department of Environmental Management. Any said tests for acceptance shall be repaired or actor's expense, including re-excavation and shall be observed by a Professional Engineer in forty days after completion.

open trenches, except when conditions require proving agencies give written permission for of pipe.

sufficiently ahead of pipe laying to reveal II be properly protected and/or barricaded

esponsible for sheeting and bracing of to protect workmen and adjacent structures. done in accordance with O.S.H.A. standards

be shaped for flow channels with concrete and smoothly finished by a semi-circular section conforming to the inside diameter of the connecting sewers. Changes in size and grade shall be made by smooth true curves for all connecting sewers

W. Granular backfill shall be required under all pavement areas and within 3 feet of the edge of pavement, plus a distance of one-half

VII. EROSION PROTECTION DURING CONSTRUCTION

at each manhole.

during construction.

of construction.

construction.

the depth.

VIII. STORM SEWER CONNECTION

A. The Contractor shall provide adequate erosion protection measures

Construction operations conducted on private or town-owned property shall be neatly finish graded and sodded with Owner approved material.

A. Storm sewer structures shall comply with current specifications of the Town, County and all agencies in respect to design and quality

B. All storm sewer construction inside public right-of-way, either existing or to be dedicated, shall be in accordance with Town of Pendleton Specifications. Contrator shall notify the aforesaid Building Commissioner forty-eight hours prior to commencement of storm sewer

Where reinforced concrete pipe is shown on the construction plans, it shall be in accordance with A.S.T.M. C-76 Class III Wall "B", unless otherwise specified on the plans.

D. Where corrugated metal pipe is shown on the construction plans, it shall be 16 gauge unless otherwise specified and shall have the connecting bands and seals as specified by the manufacturer. C. M. P. may be either aluminum pipe or zinc coated steel sheets in accordance with A.S.T.M. A-444.

- E. Manholes, catchbasins, and inlets may be precast concrete, brick or block
- F. Precast concrete and steel for manholes and inlets shall be in accordance with A.S.T.M. C-478.
- Castings shall be as shown on the Structure Data Table for G. manufacturer, type, and model number.
- H. Granular backfill shall be required for all crossings under pavement areas.

IX. UTILITIES

A. Water line

- 1. See Sanitary Sewers for vertical and horizontal separations (Note VI-I-1 and 2).
- 2. All water lines shall be in accordance with the Standards and Specifications of the Indiana Department of Environmental Management. Sterilization of water mains shall be in accordance with the Indiana Department of Management for procedures and time of treatment.
- 3. Pressure tests for the water system shall be done in accordance with manufacturer's recommendations.
- 4. Granular backfill shall be required for all utility crossings under pavement areas and 3 feet beyond the edge of pavement.
- 5. All water lines within the existing or proposed right-of-way or special easements requested by the Utility company shall be ductile iron or copper and shall be installed in accordance with the Pendleton Municipal Utilities specifications.
- Where private water lines for potable water lines are shown on the contract plans, they shall be type "C" copper pipe for sizes up to 2 1/2". Copper water service lines and fittings shall conform to A.S.T.M. B-88.
- 7. Pipe sizes between 3" and 12" for potable water mains shall be cement lined ductile iron pipe C.L.50 conforming to A.N.S.I. Specification A21.50.
- 8. Thrust blocks shall be installed in accordance with the details contained within the plans, or the Pendleton Municipal Utilities standard specifications, as applicable.
- 9. Felt material not to exceed 3/8 inch thick shall be placed between pipes and concrete thrust blocks.
- 10. All valves and appurtenances for domestic and fire protection water mains shall be approved by the Underwriters Laboratories and Factory Mutual for critical use.

B. Electric and Telephone

- Conduit shall be required for all crossings under pavement areas.
- 2. Granular backfill shall be required for all crossings under pavement areas.
- Concrete pads for electric and telephone transformers shall be set at the approximate ground grade as shown on the Site Development Grading Plans for the respective locations.

X. GRANULAR BACKFILL

Shall be in accordance with I.D.O.H. Standard Specifications. XI. PAVEMENT CONSTRUCTION

- A. All street construction shall be in accordance with the plans and specifications and conform to the minimum standards of the Town of Pendleton Specifications.
- Subgrade shall be prepared in compliance with Section 207.02 of the I.D.O.H. standard specifications. No traffic shall be permitted on the prepared subgrade prior to paving.
- C. Backfilling of utility trenches with granular material under pavement areas is required and shall conform to Town of Pendleton Specifications.
- Contractor shall notify the Town of Pendleton Building Commissioner. D. forty-eigth hours prior to commencement of street construction within any existing or proposed right-of-way.
- XII. CONCRETE CURB AND WALKS
  - A. See Detail Sheet for type and details. Curbs and walks within existing or proposed right-of-way shall be constructed in accordance with Town of Pendleton specifications.
  - Concrete shall be ready mixed Portland cement conforming to A.S.T.M. C-150, and water. Aggregate shall conform to A.S.T.M. C-33. Compressive strength of concrete at 28 days shall be 4000 p.s.i. Where required, reinforcement shall be welded steel wire fabric conforming to A.S.T.M. A-185.

C. Application

- Place concrete only on a moist, compacted subgrade or base free from loose material. Place no concrete on muddy or frozen subgrade.
- Concrete shall be deposited so as to require as little rehandling as practical. When concrete is to be placed at an atmospheric temperature of 35°F. or less, Paragraph 702.10 of the I.D.O.H. Specifications, 1988 edition, shall apply.
- 3. Except as otherwise specified, cure all concrete by one of the methods described in Section 501.17 of the I.D.O.H. Specifications, 1988 edition.

Revisions and Dates	Designed by: DBH	STATES K NEIDER
	Drawn by:	13325
	Checked by:	STATE OF
	Approved by:	Date: 7/6/89

XIII. FINISH GRADING AND SODDING (Owner shall designate location if required.

- A. Over the approved rough grade (see Section V), spread 4" minimum of topsoil or approved fill to such depth as will finish to the required finish grades and contours after rolling and natural settlement. New grades shall slope uniformly between levels established on the plans, and intersections of new grades with existing grades shall be uniform and smooth.
- B. Fertilizer and Agricultural Limestone. Fertilizer and agricultural limestone shall be spread uniformly over the area to be seeded. They shall be mixed into the top two inches of soil with a disk harrow, rotary tiller, or other approved equipment. Fertilizer shall be spread at the rate of 800 pounds per acre and agricultural limestone at the rate of one-half ton per acre, unless otherwise specified.
- C. A seeding mixture in the areas where stripping, cuts, or fills have been graded shall be seeded for silt and erosion protection at a rate of 90 pounds per acre with a mixture as follows: 18 lbs. Kentucky Bluegrass, 18 lbs. Park Kentucky Bluegrass, 18 lbs. Delta Kentucky Bluegrass, 10 lbs. Pennlawn Fescue, and 26 lbs. Annual Ryegrass. Wood cellulose fibre, straw or mulch, as approved by the Engineer, shall be applied at a rate of 3/4 tons per acre.

XIV. LIME MODIFIED SOIL (Developer shall designate location if required.)

- A. The use of Lime Modification shall be used to improve the upper 12" of subgrade that does not conform to Section 207 of the 1988 Indiana Department of Highways Specifications. The lime used shall be "Polyhydrated Lime, Code 'L'", as manufactured by Mississippi Lime, or equal. The following construction procedures shall be utilized.
  - The subgrade shall be placed to the proper grade and cross section.
  - 2. Lime shall be dry placed on the subgrade at an application rate of 24 through 36 pounds per square yard as directed by the Engineer. The lime and soil shall then be mixed by tractor-drawn disc harrows, scarifiers, rotary mixers, or front end loaders equipped with bucket teeth. Several passes shall be made to a depth of 12" as directed by the Engineer.
  - Initial compaction shall be performed with a sheepsfoot roller. The soil and lime shall be compacted in 6" lifts until the proper grade and cross section of the subgrade is obtained. This will be done by blading the excess to one lane and compacting the mixed lime and soil in the 6" lifts. The final passes shall be made with a steel wheel or pneumatictired roller approved by the Engineer.
  - The density of the soil-lime mixture will be determined by the Town of Pendleton near the end of the finishing operations. Any portion of the soil-lime mixture not passing the density requirements shall be corrected, or removed and replaced. The in place dry density shall be determined by the Town of Pendleton in accordance with AASHTO T-191.
  - When compaction of the lime-soil mixture is nearing completion, the surface shall be sloped to the required lines, grades, and cross section, and compaction continued using a steel wheeled roller until the minimum specified density is obtained.
  - The surface shall be maintained in a moist condition by means of a fine spray of water during all finishing operations. The treated material shall be maintained in a moist condition by sprinkling with water for a period of seven days. Traffic o all types shall be kept off of the lime modified soil for seven days, or thereafter until in the opinion of the Engineer the lime-modified soil will support traffic without being damaged. When allowed on the subgrade, traffic shall exercise further care in driving over it so as not to tear up the subgrade.
  - 7. Caution: Lime and lime mixtures are caustic in nature. The manufacturer of the lime shall be consulted to determine what special precautions are required to protect the skin, and particularly the eyes.

Note: the Contractor shall receive approval from the Engineer for any changes to the plans or specifications.

<b>NSE</b> Engineering
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Title:

Scale: /\* = 50 '

MSE SPECIFICATIONS

PRF: 0295SPEC

Sheet No.: 2 of 10