

**72 MGD  
POTABLE WATER SYSTEM**

**CHARLESTOWN  
STATE PARK**

Why does a state park need  
72 million gallons per day  
potable water?

# INDIANA ARMY AMMUNITION PLANT (INAAP)

## Built-1941

10,600 acres (later 15,000)

1,700 buildings

27,500 people employed at max. level

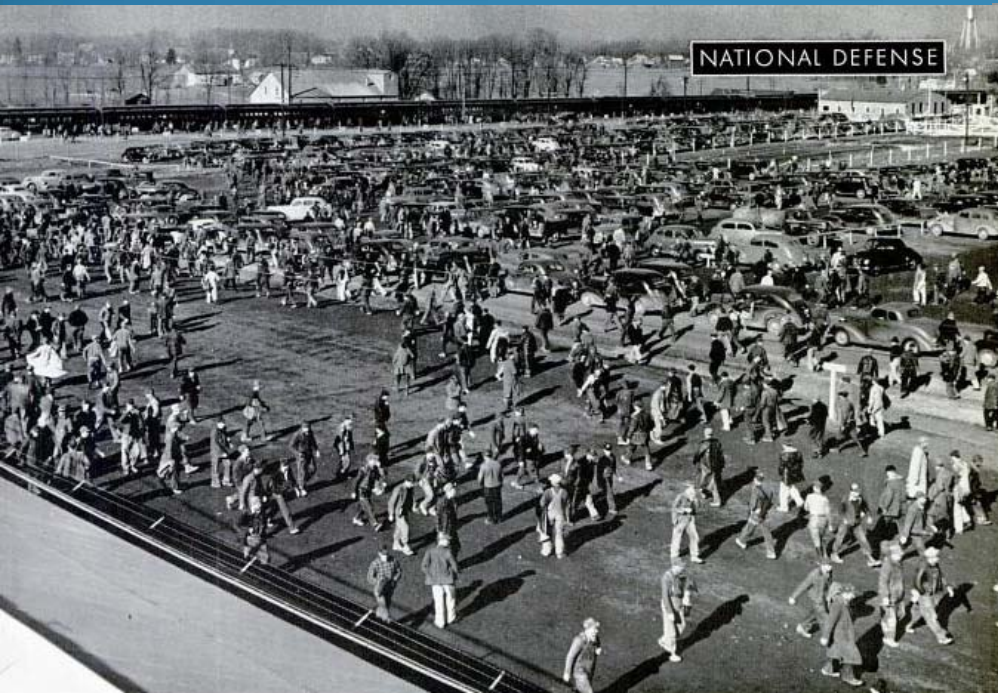
## Closed-1992

5,100 acres transferred to Indiana DNR

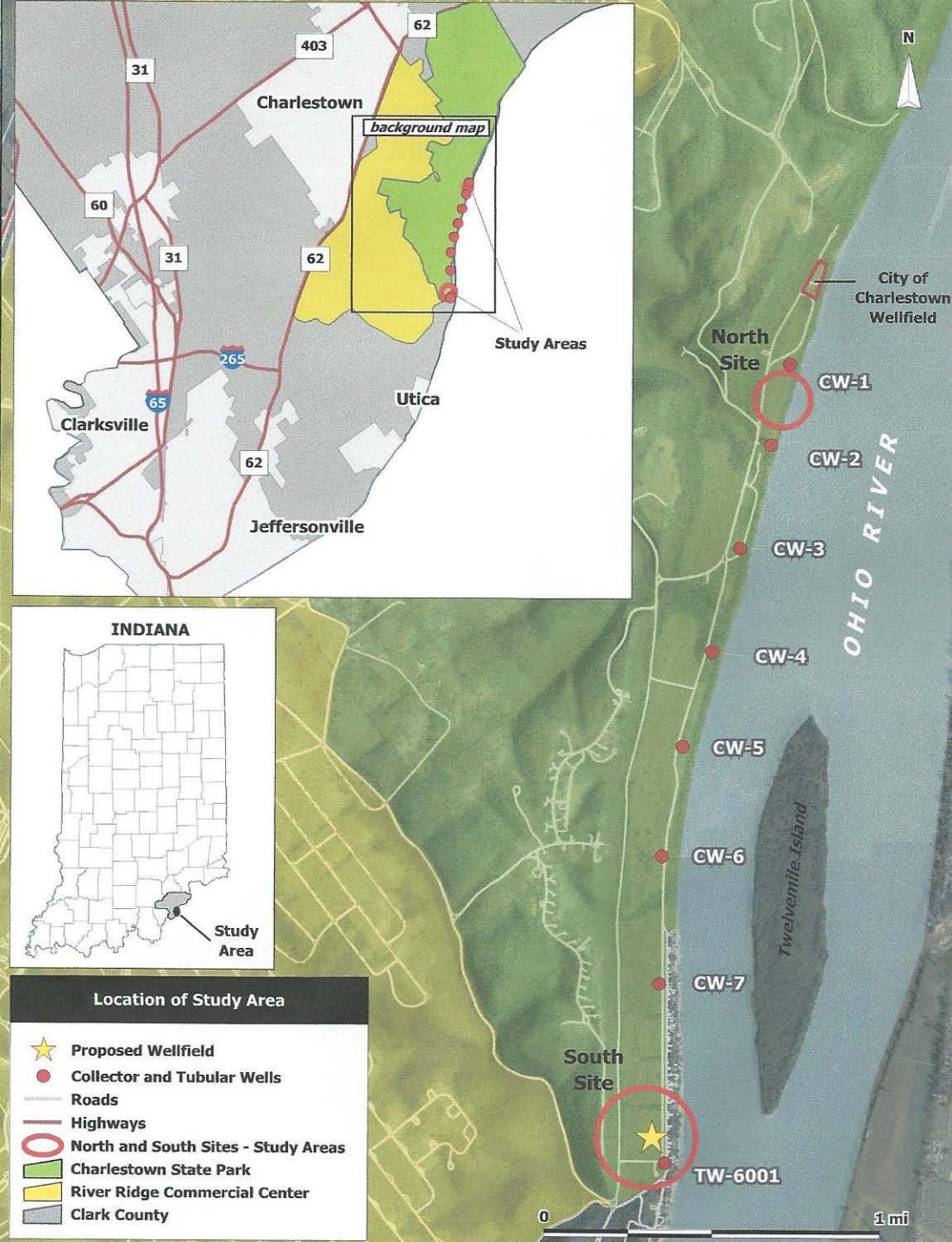
6,000 acres became River Ridge Commerce Center



# INDIANA ARMY AMMUNITION PLANT DURING WORLD WAR II

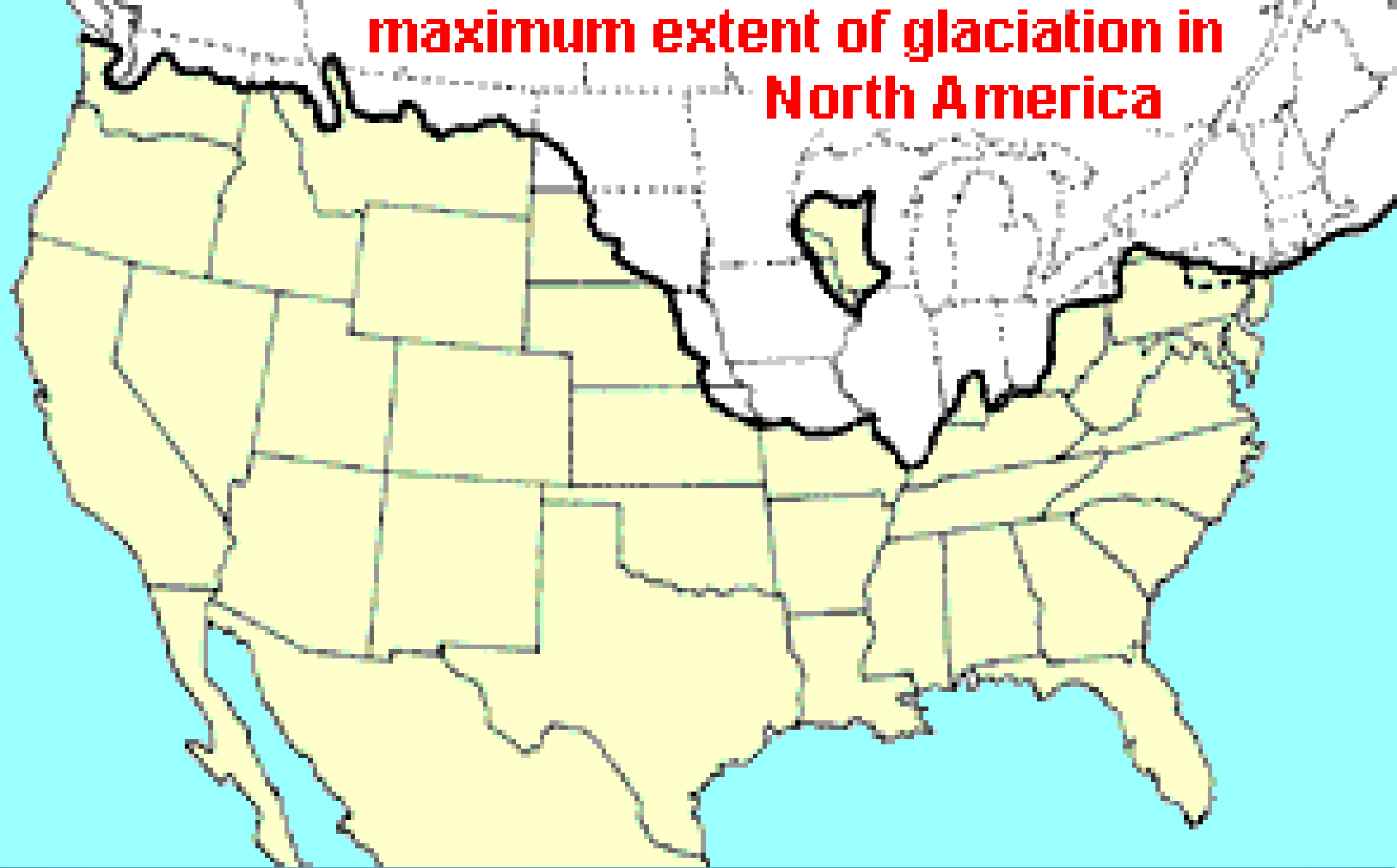


# Location of base and water system

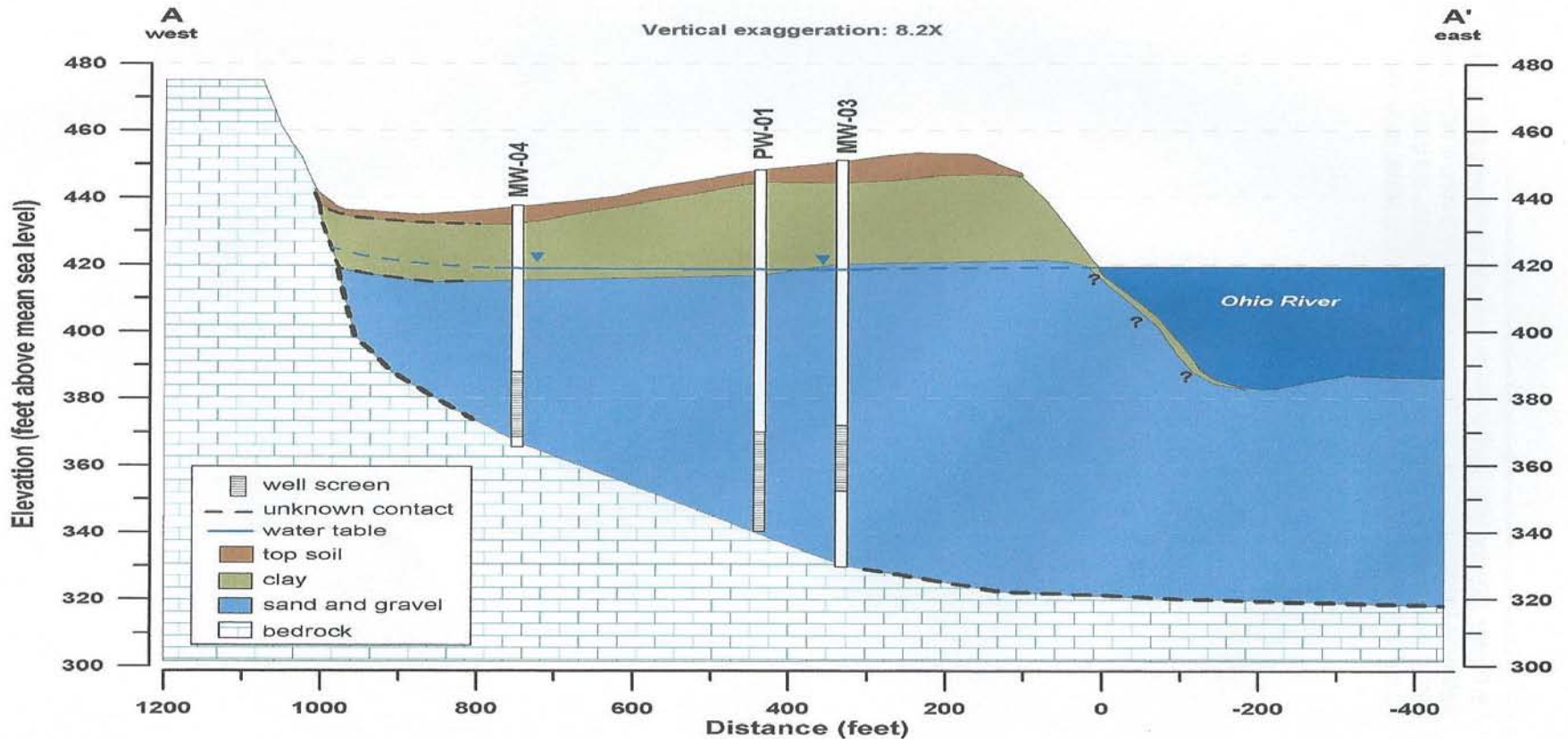


To understand the natural and cultural history of an area, you have to understand the geology.

**maximum extent of glaciation in  
North America**



Extent of Illinoian Ice Age



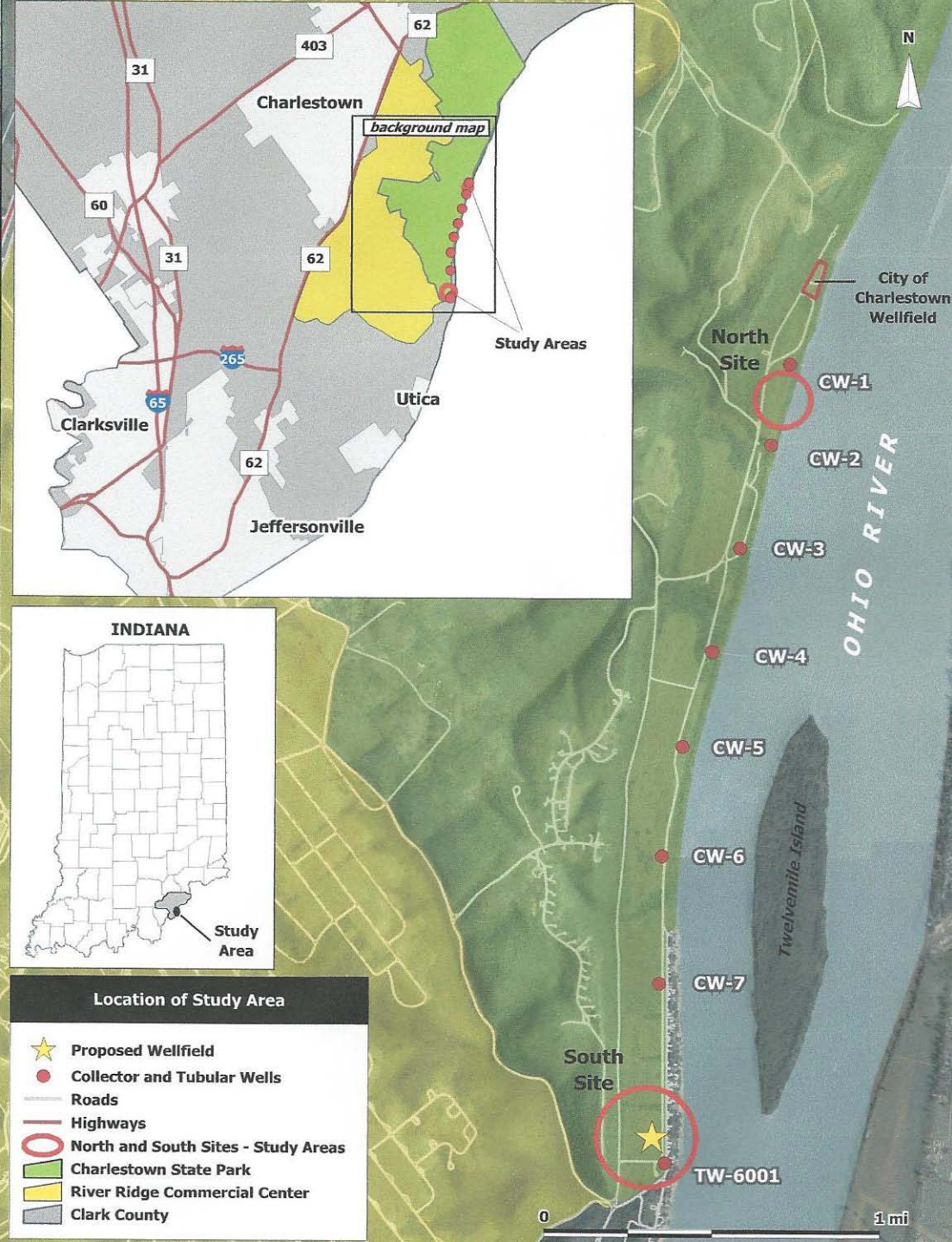
## Glacial Outwash

40'-100' Thick, 0'-1,000' Wide

4 Miles  $\pm$  Long



# Location of base and water system



Because of the geology, the aquifer is there.

Because the aquifer is there, the base was built.

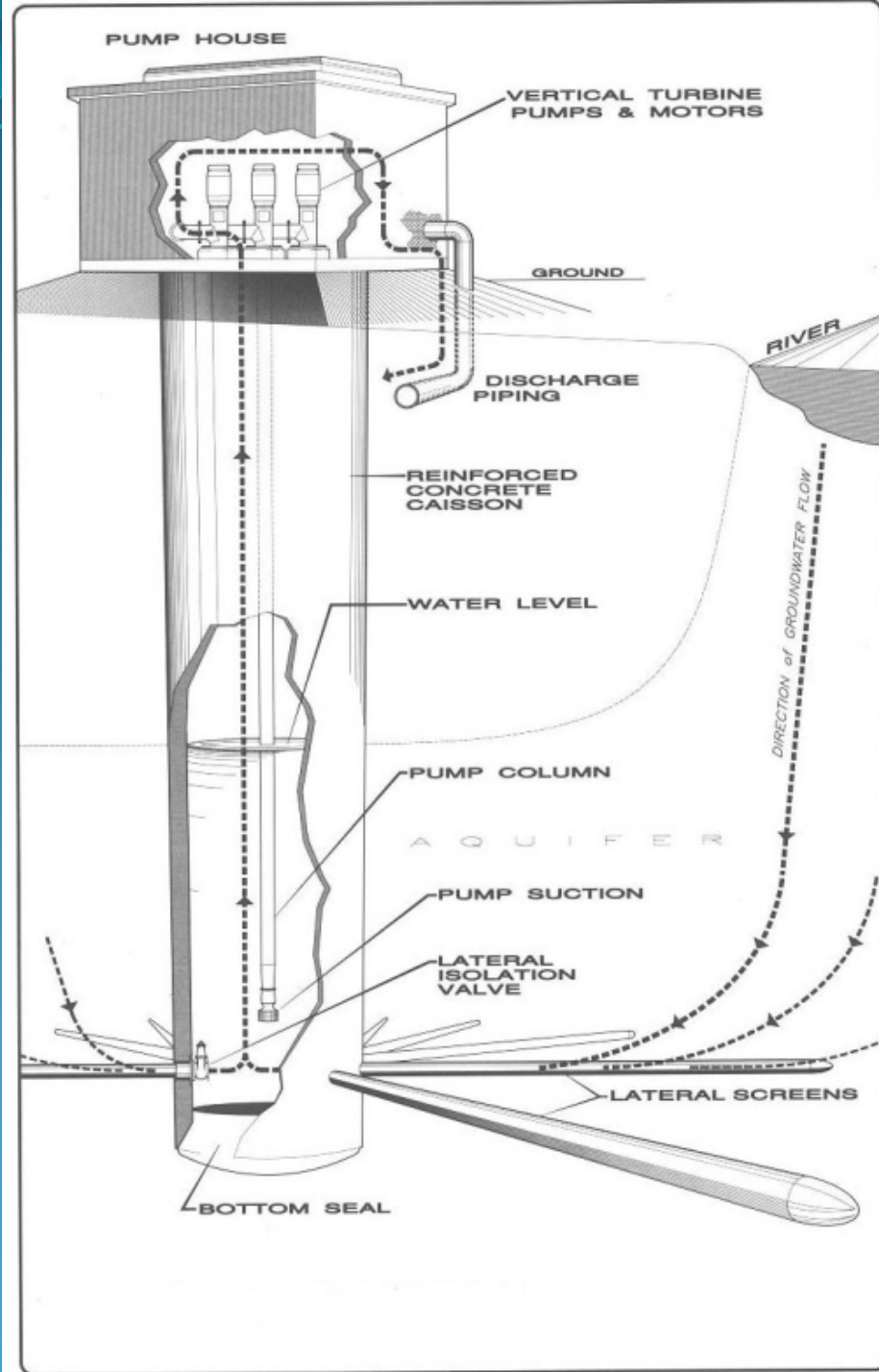
Because the base was there, we now have a state park and industrial park.

# WATER SYSTEM

- 7 Ranney collector wells
- 2 Tubular wells
- 2 5 MG Ground storage reservoirs
- 5-8 Elevated water towers
- 8 Miles 8", 12", 36" Transmission lines
- 23 miles 6"-12" Distribution system lines

Owned by private water company

# RANNEY COLLECTOR WELL





# Charlestown Ranney Well

# Ranney Well Pump

3,500 GPM

400 HP





# Ranney Well Piping

# Tubular Well





# PROBLEMS



# PROBLEMS

Oversized for current use-125,000 GPD

53 Industrial customers & City of Charlestown

Many miles of 65 year old water lines

Two wells working

Roof collapsed on one ground storage reservoir

Designed for 3 distribution systems-1 in use

Water towers old, many unusable

Lost water-73% (Not counting transmission lines)

Potential maintenance & repair costs huge

# HOW DID DNR GET THIS?

# WHY DID DNR WANT THIS?

Aquifer came with land

“Rights” to water system owned by private  
company

Ownership vague

Hindrance to economic development

# OWNERSHIP OF WATER SYSTEM

INAAP transferred rights for water system to private entity, including

- Responsibility to operate and maintain

- Rights to all revenue generated

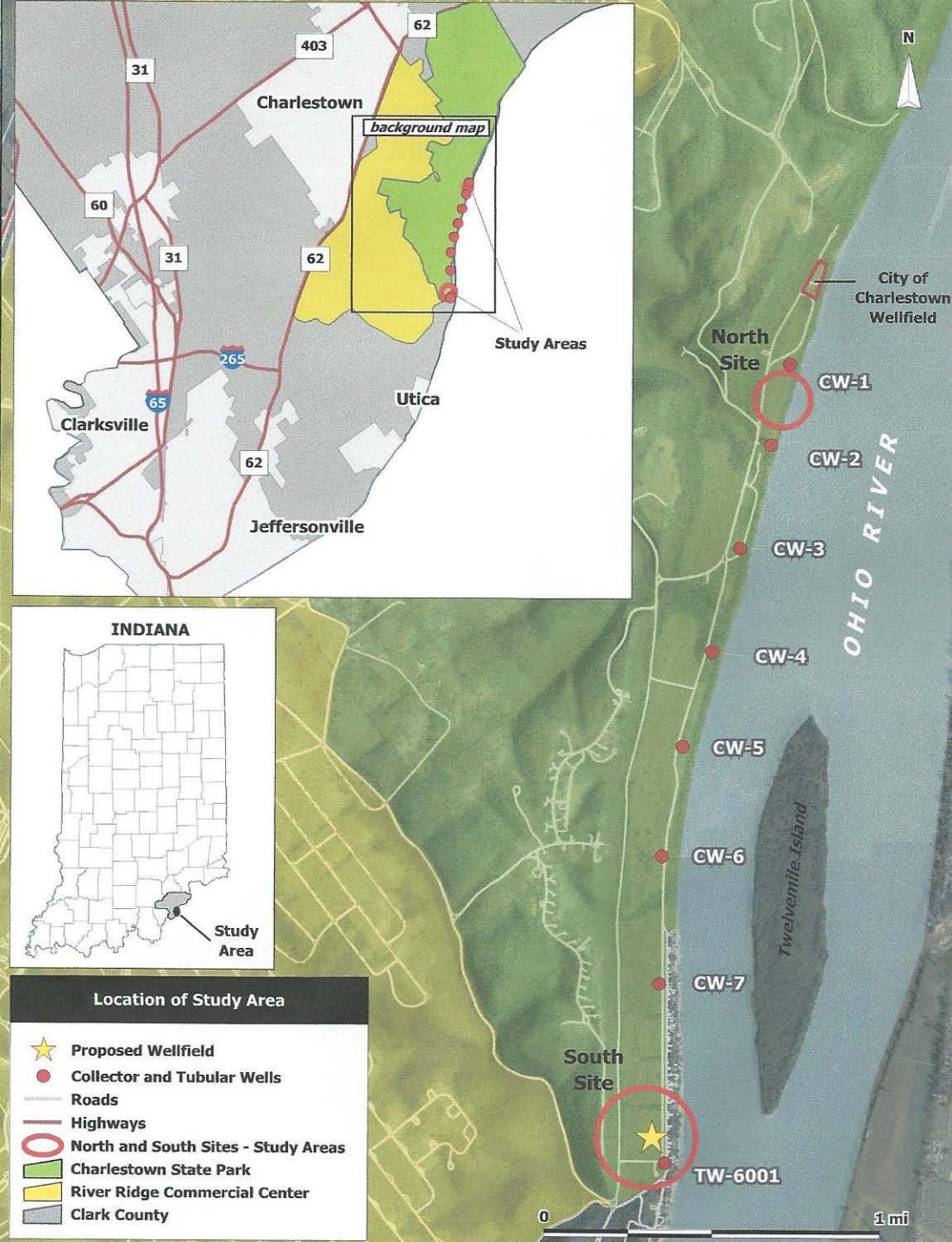
- Right to use any part of system needed

- Easement over anywhere they needed

- Right to dispose of any unneeded portion of system or equipment

INAAP retained “ownership”

# Location of base and water system



# WHY DID DNR WANT THIS?

DNR executive office wanted water system  
Assist with local economic development  
Consolidate “ownership”

DNR engineers had significant reservations

# ENGINEERING RESERVATIONS

Water leaks

Questionable water quality

Ground water?

Treatment

Chlorination/fluoridation

Phosphate for iron/manganese sequestration

Storage facilities questionable

Had never been inspected by state regulators

Concerns verified by outside consultant

Robert E. Curry & Associates

# AT WHAT POINT DOES GROUND WATER BECOME SURFACE WATER?

Concrete storage reservoir-Untreated water

Previously not part of potable system

Wood roof with unpainted wood ceiling inside

Large weave wire mesh opening around top

Rotted wood frame for wire mesh

Possible leak in roof

Air release “hole” in 36” pipe from well









42:02

DVD



Play





# INDIANA DEPT. OF ENVIRONMENTAL MANAGEMENT (IDEM)

Unsure if they had jurisdiction  
Federally owned?

Property where system located mostly  
transferred to DNR and River Ridge

Sold water to City of Charlestown

Finished water was being tested

Passed bacteria tests

# IDEM AS ALLY

Offer to buy contingent on IDEM inspection and meeting all regulatory requirements

Major repairs to concrete storage reservoir

Clean up of pump house interiors

Numerous safety issues corrected

Chlorine systems updated

Elevated towers inspected

Piping systems labeled

Replace hole in pipe with air release valve

# MISSION ACCOMPLISHED

February, 2007-DNR became proud owner of 72 MGD water system

Now what?

No staff to run it

No budget for improvements



# INTERIM SOLUTION

Hire private company to operate system

Net cost about \$10,000 per month

Major repairs DNR responsibility

No end in site

No money for needed upgrades

Water quality complaints from users

# HELP ARRIVES

American Recovery and Reinvestment Act-2009

“Shovel ready”?

Change order to existing design contract

Robert E. Curry & Associates

Work bid-Dec. 15, 2009

Notice to Proceed-Dec. 18, 2009

# NEW 2 MGD WATER SYSTEM

3-750 GPM tubular wells

Iron & manganese removal

Chlorination and fluoridation

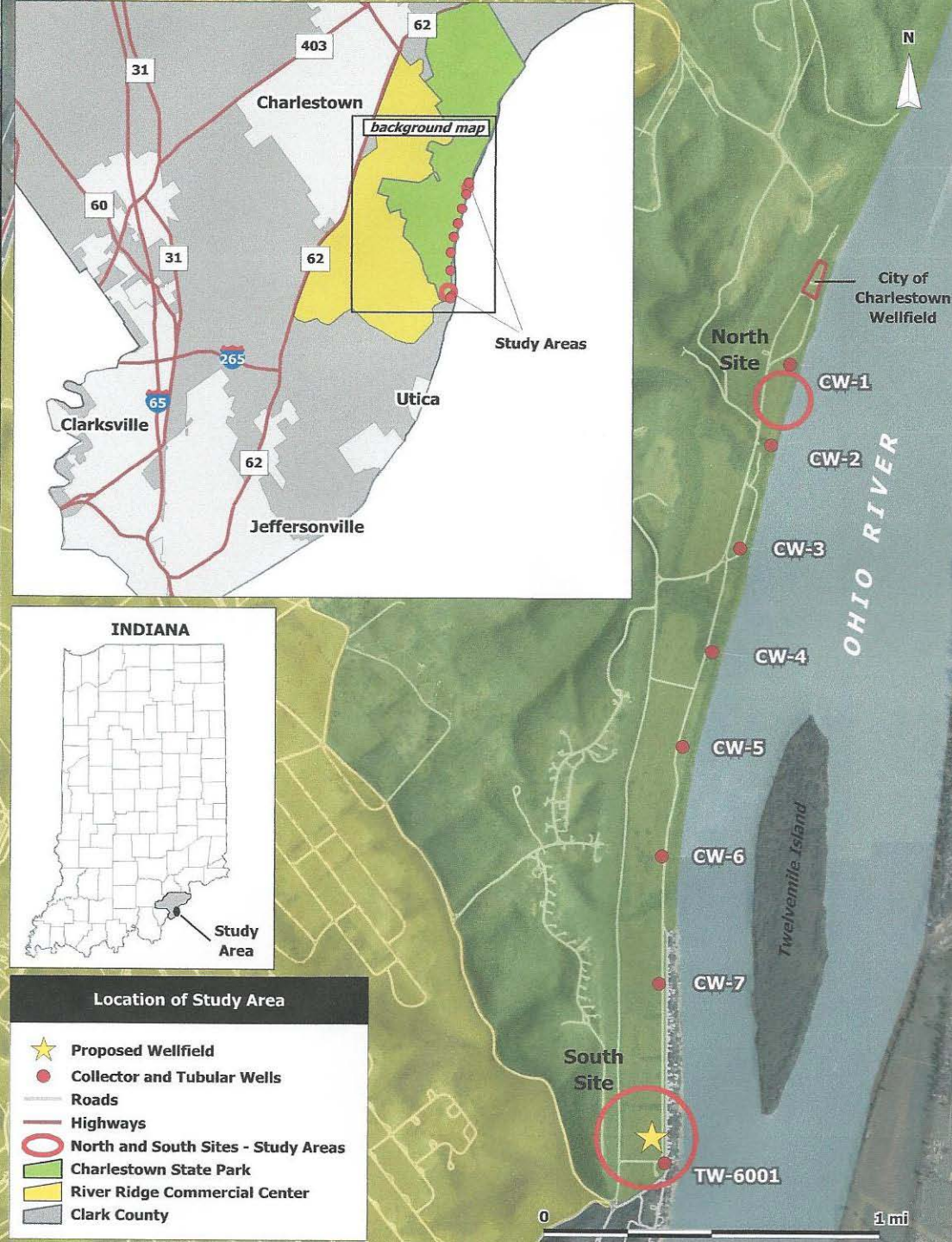
16" Transmission line

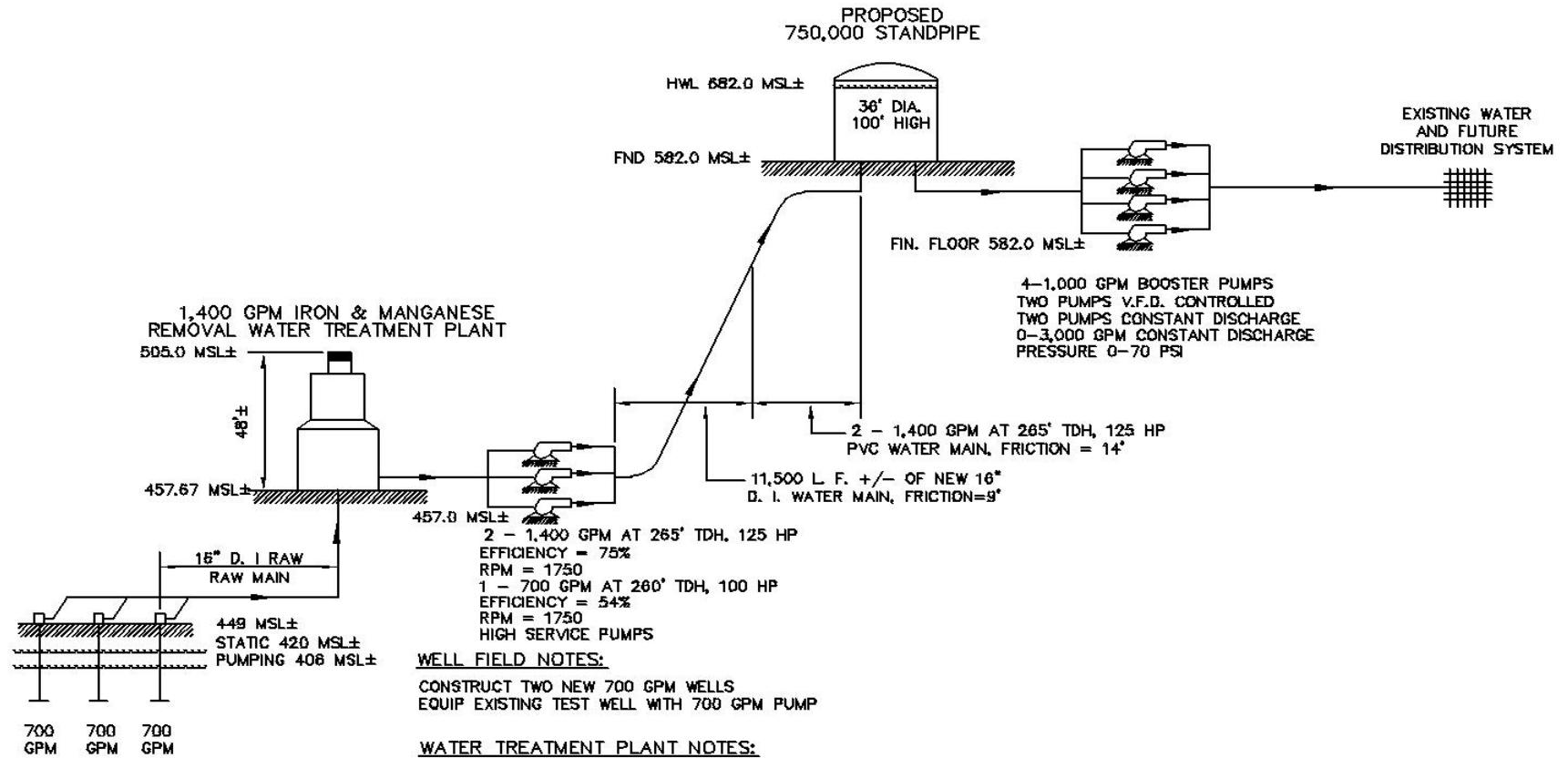
750,000 gal. fiberglass coated standpipe

3,000 GPM booster station

Variable speed pumps

# Location of New Water System





WELL FIELD NOTES:

CONSTRUCT TWO NEW 700 GPM WELLS  
EQUIP EXISTING TEST WELL WITH 700 GPM PUMP

WATER TREATMENT PLANT NOTES:

INSTALL 1-700 & 2-1400 GPM HIGH SERVICE PUMPS  
CHEMICAL ADDITION: LIQUID BLEACH, FLUORIDE, AND  
SODIUM PERMANGANATE  
STANDBY POWER FOR WATER TREATMENT PLANT

100 YEAR FLOOD ELEVATION=453.20 MSL

WATER SUPPLY WELLS

3 - 700 GPM VERTICAL TURBINES  
TDH = 130'  
HORSEPOWER = 30  
EFFICIENCY = 82%  
RPM = 1750

CHARLESTOWN STATE PARK WATER SUPPLY IMPROVEMENTS

HYDRAULIC SCHEMATIC

NO SCALE



NEW WELL FIELD, 3-750 GPM WELLS



# NEW 2 MGD WATER TREATMENT PLANT



NEW  
750,000  
GALLON  
WATER  
TANK





NEW 3,000 GPM BOOSTER STATION

# PROJECT COSTS

Construction completed July, 2011

Water treatment-\$3,060,000

Water transmission lines-\$1,560,000

Water standpipe-\$550,000

Aquifer study-\$500,000

Wellhead protection plan-\$5,000

# GAME CHANGER

System small and efficient

Easily expandable to 4 MGD

Potential is tremendous

River Ridge Commerce System

Local communities

Central Indiana communities

Louisville

# RFP FOR UTILITY TO OPERATE SYSTEM

## Goals

No net cost to DNR

Maintain system

Bill customers and collect revenue

Keep rates low

Work with new customers

DNR keep control over long term expansion

Revenue for DNR

# RFP CRITERIA

1. Vendor to collect and keep all revenue from water sales
2. Vendor responsible for all operation, maintenance, regulatory compliance, etc.
3. Vendor responsible for all new customers within River Ridge Commerce Center
4. DNR to pay \$0 to vendor
5. What rates are needed to accomplish this?

# EVALUATION CRITERIA

Criteria	Points
1. Adherence to Mandatory Requirements	Pass/Fail
2. Management Assessment/Quality (Business and Technical Proposal)	<b>25 points</b>
3. Cost (Cost Proposal)	<b>-30 to +30</b>
4. Indiana Economic Impact	15
5. Buy Indiana	10
6. Minority (10) and Women Business (10) Subcontractor Commitment	20
<b>Total</b>	<b>100 (105 if bonus awarded)</b>

Lots of interest

One bidder

River Ridge Commerce Center

Sub-Louisville Water Co.

Contract finalized-April 2011

Contract term-4 years + 4

# WHERE DO WE GO FROM HERE?

Become wholesale supplier

Local water systems

Indianapolis

Louisville

Revenue for DNR



**QUESTIONS?**